Emotion Behaviours in Mothers with Childhood Histories of Aggression and/ or Social Withdrawal and their Children: An Intergenerational, High-risk Study

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ABSTRACT

Emotion Behaviours in Mothers with Childhood Histories of Aggression and/or Social Withdrawal and their Children: An Intergenerational, High-risk Study

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Aspects of emotional competence, defined as "emotion behaviours," have a profound impact on children's social functioning, particularly on the development of prosocial behaviours. The mother-child relationship provides a significant context in which to understand how emotion behaviours are expressed and regulated. The present study examined the contribution of maternal childhood histories of aggression and/or social withdrawal to the prediction of child emotion behaviours, maternal expressions of emotion, and the development of children's prosocial skills.

Mothers with childhood histories of aggression and/or social withdrawal from the Concordia Longitudinal Risk Project, a longitudinal, intergenerational study, participated with their 9- to 13-year old children. Dyads (N = 49) discussed conflicts rated as problematic in their relationship. Emotion behaviours, measured as cues to emotion, and dimensions of emotion regulation, were coded using the Emotion Behaviour Coding Scheme.

Results partially supported the hypotheses that maternal childhood histories of aggression and/or withdrawal contribute to the prediction of children's emotion behaviours, specifically dimensions of emotion regulation. Furthermore, results suggest that mothers may socialize children's dimensions of emotion regulation via their own emotion behaviours. Finally, children's emotion behaviours predicted specific prosocial skills (empathy, assertiveness, and self-control).

Taken together, findings contribute to the current literature, highlighting the importance of examining emotion behaviours and their impact on children's prosocial skills. The influence of maternal risk status and socialization (via emotional expressions) on children's emotion behaviours is also underscored.

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The last two decades have seen a surge of interest in the study of emotion and the critical role it plays in children's developing social competence (e.g., Denham, von Salisch, Olthof, Kockanoff, & Caverly, 2002; Doughtery, 2006 ; Eisenberg, Cumberland, & Spinrad, 2001; Eisenberg et al., 2005a; Saarni, 1999). Emotional competence, which includes understanding, appropriately displaying, and controlling emotional expressions and actions (Eisenberg, Cumberland, & Spinrad, 1998a), is intricately linked with developing prosocial behaviour and overall social competence with peers (e.g., Halberstadt, Denham, & Dunsmore, 2001; Hubbard & Coie, 1994; Parke, 1994). Indeed, adaptive emotional development has been found to be an essential component for predicting a plethora of child outcomes, including school readiness, the ability to build and maintain positive relationships, peer acceptance, and overall social and academic competence. (e.g., Denham et al., 2002; Dougherty, 2006).

A theoretical model proposed by Halberstadt, Denham, and Dunsmore (2001) defines the relationship between emotional and social competence as "Affective Social Competence" (ASC). The model describes how behavioural and verbal components of emotional competence (i.e., the experience, expression, regulation, and recognition of emotions) are central to successful peer relationships in school-age children. Children who regulate their emotional expressions, express more positive emotions, and accurately recognize emotions expressed by others are considered to have strong prosocial skills and are popular among peers. The importance given to specific prosocial behaviours can vary according to age; for example, teachers' rate assertion skills as being more important to school success for children in middle-childhood than in adolescents (Caldarella & Merrell, 1997). In middle-childhood, prosocial skills such as empathy, assertiveness, and

self-control appear important for successful peer, teacher, and classroom interactions (Caldarella & Merrell, 1997; Meier, DiPerna, & Oster, 2006; Roberts & Strayer, 1996).

As highlighted by the ASC model (Halberstadt et al., 2001), the *integration* of skills involved in emotional competence (including the experience, physiological arousal, and behavioural responses of emotional expressions and regulation) is important to effective social interactions. However, as pointed out by Eisenberg and colleagues, studying emotional competence as a global concept does not allow research to isolate the influence of its different components on child outcomes (Eisenberg, Fabes, Guthrie, & Reiser, 2000). In fact, existing data suggests that two aspects of emotional competence, emotionality and emotion-behaviour regulation, are related, yet distinct phenomenon that make individual contributions to children's behaviour (e.g., Derryberry & Rothbart, 1997; Eisenberg et al., 1997; Rydell, Berlin, & Bohlin, 2003). Consequently, it is critical to study the elements of emotional competence separately to better understand the unique contributing factors of emotional competence on developmental outcomes.

A common method used by researchers to evaluate emotional competence is through the observation of "emotion behaviours", which primarily involves the expression, interpretation, and regulation of emotion-induced actions (Perez & Riggio, 2003). Components of emotion behaviours involve emotionality and emotion-behaviour regulation. Emotionality includes the experience and overt expression of positive and negative emotions. The observable expression of these emotions can be assessed for frequency, duration, and/or intensity. In turn, the observed frequency, duration, and/or intensity is used to infer the internal experience of emotion (Eisenberg, et al., 1997; Rothbart, Ahadi, Hershey, & Fisher, 2001). When studying emotionality, many

researchers have focused on facial expressions alone to determine emotional reactions, neglecting the fact that our entire bodies are used when expressing emotion (Coulson, 2004). In an effort to include a greater range of behaviours when examining emotionality, the present study encompassed what Planalp and colleagues deem "cues to emotion" (Planalp, DeFrancisco, & Rutherford, 1996). Cues to emotion are sets of overt behaviours utilized to infer emotional meaning, as well as to evaluate, maintain, and make adjustments for the needs of each person during social interactions. They may include one or a combination of any of the following behaviours: facial expressions and eye contact, body postures, gestures, and voice or vocalizations.

To date, much of the literature on emotionality focuses on the problematic outcomes induced by negative emotions, including behaviour problems (Rothbart & Bates, 1998), increased hostility in social interactions (Derryberry & Rothbart, 1997), peer rejection (Dougherty, 2006), and less prosocial behaviours (Meier et al., 2006; Roberts & Strayer, 1996). In contrast, much less is known about the influence of positive emotionality on various child outcomes. Existing studies suggest that in general, positive emotions are associated with adaptive functioning, including peer acceptance, better prosocial skills, and fewer behaviour problems (e.g., Eisenberg, Fabes, Murphy, Karbon, Smith, & Maszk, 1996; Eisenberg, Wentzel, & Harris, 1998b; Leve & Fagot, 1997; Rydell et al., 2003). However, some researchers speculate that positive affect alone may not lead to positive outcomes (Roberts & Strayer, 1996; Rydell et al., 2003). Instead, they argue that the ability to *regulate* one's positive (or negative) expressions of emotion is the driving factor behind adaptive functioning.

The ability to regulate emotional expressions, defined as emotion-behaviour regulation, has been distinguished from the emotion regulation that controls internal arousal (Eisenberg et al., 1997). Eisenberg and colleagues have defined emotion-behaviour regulation as the process of instigating, maintaining, inhibiting, or changing the occurrence, form, and duration of the expression of emotion (Eisenberg et al., 2000). Both emotionality and emotion-behaviour regulation are studied in the temperament literature, and are believed to be central to individual differences found in the development of prosocial behaviours (Eisenberg et al., 2000; Rothbart & Bates, 1998). A notable contribution of the temperament literature is its conceptualization of emotion-behaviour regulation as "dimensions of emotion regulation" (Posner & Rothbart, 2000). This redefinition enables researchers to better pinpoint the specific regulatory mechanisms at work not accessible with the more global term of emotion-behaviour regulation (Eisenberg et al., 2000). Dimensions of emotion regulation include, but are not limited to, behavioural inhibition, activity level, inhibitory control (and failure), positive anticipation, attention focus and shifting (e.g., Batum & Yagmurlu; Posner & Rothbart, 2000), as well as coping behaviours such as self-soothing, avoidance, and self-distraction (Mangelsdorf, Shapiro, & Marzolf, 1995).

While there is an abundance of research contending that genetics influence the expression and regulation of emotion, environmental factors such as parental behaviours also play an important role (e.g., Eisenberg, et al., 1998a; Eisenberg, Zhou, Spinrad, Valiente, Fabes, & Liew, 2005b; Jones & Garner, 1998; Leve & Fagot, 1997). Socialization of emotion has been shown to have a significant effect on the development of emotional competence in infancy and preschoolers (e.g., Fabes et al., 1999; Hastings,

2008; Rubin, Burgess, & Hastings, 2002), and to a much lesser extent, in middle-childhood and preadolescence (e.g., Eisenberg, Fabes, Shepard, Guthrie, Murphy, & Reiser, 1999; Eisenberg et al., 2005b). As mothers are often the primary caregivers, the mother-child relationship provides a significant context within which we can understand how emotions are socialized (Eisenberg et al., 1998a; Parke, 1994). Maternal parenting strategies and behaviours in particular are used directly and indirectly to socialize adaptive emotional development in their children (Denham et al., 2002; Parke, 1994).

Socialization of emotion occurs directly when mothers (and fathers) teach their children the rules that guide the appropriate expression and labeling of their own and others' emotions (Parke, 1994). Strategies employed to directly socialize emotions include maternal expressivity and reactions to children's emotion-related behaviours, as well as the encouragement, disapproval, or minimization of expressions they wish their children to use. Emotions are also socialized indirectly during everyday mother-child interactions. In these cases, it is not the goal of the interaction to teach the child about the expression and regulation of emotions; it occurs naturally throughout the interchange (Parke, 1994). Mothers' reactions to their children's emotions, as well as opportunities they provide for children to learn about emotions through various situations (including dyadic interactions, marital or familial conflict, and play dates with same-aged peers), all indirectly effect children's emotional development (Eisenberg & Fabes, 1994; Parke, 1994). The present study utilizes components of both direct (affective expressions) and indirect (dyadic interaction during a Conflict task) opportunities for mothers to socialize their children's emotion behaviours.

The processes of socialization have long been a concern of those who conduct longitudinal research (e.g., Eisenberg et al., 1998a; 1999; 2005b). To further our understanding of parenting behaviours' influence on children's emotional competence, an important step is to study patterns of parent-child interactions using intergenerational designs. Intergenerational studies take the experiences and characteristics of the parent generation and use them to identify processes that affect their own well-being and that of their children. Such research designs attempt to test theoretical models of underlying mechanisms and factors in the transfer of risk across generations (Capaldi, Conger, Hops, & Thornberry, 2003). It has been found that parenting practices (e.g., parental modeling), parent-child interactions, and children's observations of parenting behaviours, can be transferred or "directly transmitted" (Caspi & Elder, 1988) across generations (Brook, Tseng, Whiteman, & Cohen, 1998; Stack, Serbin, Enns, Ruttle, Barrieau, & Schwartzman, under revision).

Intergenerational research has also demonstrated that a history of parental negative behaviour influences their children's development. For example, socially deviant behaviours, such as aggression and social withdrawal have been found to place offspring of the next generation at risk for poor developmental outcomes (e.g., Serbin, Cooperman, Peters, Lehoux, Stack, & Schwartzman, 1998; Stack, Serbin, Schwartzman, & Ledingham, 2005). The Concordia Longitudinal Risk Project (Concordia Project) is a longitudinal community study of boys *and* girls with histories of aggression and/or social withdrawal who have been followed into parenthood and the next generation.

Studies have shown that aggressive girls are particularly at-risk for negative adolescent and adult outcomes, such as an increase in antisocial behaviour (Serbin,

Marchessault, McAffer, Peters, & Schwartzman, 1993); early, high-risk sexual activity, and teen pregnancy (Scaramella, Conger, Simons, & Whitbeck, 1998; Serbin, Peters, McAffer, & Schwartzman, 1991); school dropout and truncated maternal education (Serbin et al., 1998); and the development of internalizing disorders (Zoccolillo, Pickles, Quinton, & Rutter, 1992). Once aggressive girls become mothers, they may be more likely to use and convey aggression within their families, increasing the potential for negative outcomes in their children (Serbin et al., 1991; Serbin & Karp, 2003).

Similarly, girls who are socially withdrawn are also at-risk for negative outcomes, including peer rejection, negative self-perceptions, less involvement in social activities, and internalizing disorders (Coplan, Girardi, Findlay, & Frohlick, 2007; Nelson, Rubin & Fox, 2005; Schneider, Younger, Smith, & Freeman, 1998). However, little research has been designed to investigate how the behavioural patterns and negative outcomes of being socially withdrawn in childhood affect later psychosocial adjustment and parenting ability in girls. Findings from available studies suggest that both aggressive and socially withdrawn behaviours negatively affect girls' social, academic, and economic well-being throughout their lives (e.g., Serbin et al., 1998). Furthermore, it has been found that girls who exhibit patterns of aggressive *and* withdrawn behaviour in combination have the highest risk for later psychosocial maladjustment (e.g., Stack et al., 2005). In addition, problematic parenting behaviours, such as elevated levels of hostility, sarcasm, unresponsiveness, and irritability with offspring, are prevalent among mothers with histories of aggression and/or social withdrawal (Serbin et al., 2002; Serbin & Karp, 2003).

Research has found that parenting behaviours, including emotional expressions displayed to children, are directly affected by parents' own histories of socially deviant behaviour (e.g., antisocial behaviour, aggression, social withdrawal; Conger, Neppl, Kim, & Scaramella, 2003; Serbin et al., 2002; Thornberry, Freeman-Gallant, Lizotte, Krohn, & Smith, 2003). Therefore, observing emotion behaviours in children of mothers with histories of aggression and/or social withdrawal, as well as examining the impact children's emotion behaviours have on their prosocial skills, is vital to improved understanding of the role of child emotion behaviours and parenting characteristics in perpetuating risk or promoting adaptive social functioning across generations.

The present study examined children in middle-childhood and their mothers interacting during a Conflict task and was designed to contribute to the existing literature on the development of emotional competence. Few intergenerational studies exist and none have examined whether manifestations of childhood aggression and/or social withdrawal are associated with children's emotional competence via emotion behaviours. In addition, there is little research examining the influence of maternal socialization of emotion during middle-childhood (Eisenberg et al., 1999; 2005b; Lunkenheimer, Shields, & Cortina, 2007). Consequently, this study is one of only very few to examine emotion behaviour and its socialization across generations in a high-risk sample. Furthermore, little research has been conducted on positive emotionality, particularly when it is being used as both a predictor and outcome variable (Halle, 2003; Leve & Fagot, 1997). Finally, examining distinct categories of emotion behaviours in the prediction of children's social skills may help pinpoint some of the mechanisms leading to the

development and maintenance of specific prosocial behaviours such as empathy, assertiveness, and self-control.

Objectives for this study were to: (1) examine how maternal childhood histories of aggression and/or social withdrawal are associated with children's emotion behaviours, specifically cues to emotion and dimensions of emotion regulation; (2) determine how mothers with histories of socially deviant behaviour displayed emotion socialization behaviours (i.e., positive and negative cues to emotion), and how these may be associated with their children's emotion behaviours; and (3) examine the relationship between child emotion behaviours and the development of prosocial skills (empathy, assertiveness, and self-control). The following hypotheses were directly related to the objectives and based on an integration of findings from the current risk, socialization, and emotional development literatures (e.g., Conger et al., 2003; Eisenberg et al., 1997; Eisenberg et al., 2000; Parke, 1994; Serbin & Karp, 2003; Serbin et al., 2002). Mothers with histories of aggression and/or social withdrawal were expected to have children who displayed more negative (e.g., angry or sad facial expressions, gaze aversion, tense posture) and less positive (e.g., smiles, laughs, eye contact) cues to emotion. These children were also expected to display more behavioural inhibition (hangs head, slumped posture), more inhibitory control failure (shifts/wiggles, slams hand, yells), less self-soothing behaviours (touching of body or clothing), and greater activity levels (e.g., gestures, head movements). Children were expected to display more negative cues to emotion if their mothers did, along with more behavioural inhibition and inhibitory control failure, less self-soothing behaviours, and greater activity levels. Children were also expected to display more positive cues to emotion if their mothers did, as well as

more self-soothing behaviours, lower activity levels, and less inhibitory control failure and behavioural inhibition. It was also hypothesized that children who displayed more negative cues to emotion would rate themselves as having less empathy, assertiveness, and self-control, while children who displayed more positive cues to emotion would rate themselves as being more empathic, assertive, and in control. Finally, children who displayed more self-soothing behaviours, lower activity levels, and less inhibitory control failure and behavioural inhibition were expected to rate themselves as being more empathic, assertive, and in control than their peers.

Method

Participants

The current study drew participant mothers from a larger sample of individuals taking part in the Concordia Project. Beginning in 1976, 4,109 first-, fourth-, and seventh-grade students were recruited from inner-city Francophone schools found in low SES neighborhoods in Montreal, Quebec (Schwartzman, Ledingham, & Serbin, 1985). The children were screened for aggression and social withdrawal via a French translation of a peer nomination measure, the Pupil Evaluation Inventory (PEI: Pekarik, Prinz, Liebert, Weintraub, & Neale, 1976; see Appendix A). The PEI, which is a reliable (internal consistency above .70 for all factors) and valid (concurrent validity ranges from .54 - .65) measure for assessing children's social behaviour, includes 34 items that factor into components of aggression, withdrawal, and likeability (Pekarik et al., 1976). Of these children, 1,770 (861 boys; 909 girls) met inclusion criteria for this project. Children were considered at high psychosocial risk if they obtained scores above the 95th percentile on aggression and below the 75th percentile on withdrawal (highly aggressive);

the reverse criteria were put into effect for the highly withdrawn children. Those that were above the 75th percentile on aggression and withdrawal dimensions were considered both highly aggressive and social withdrawn. Children who did not obtain extreme scores (i.e., scored between the 25th and 75th percentiles on both dimensions) were included as a comparison group. A more detailed description can be found in Schwartzman, Ledingham, and Serbin (1985).

Forty-nine mothers, drawn from a larger sub-sample of 119, all of whom initially were assessed in 1976-78, participated in the present study with their children (23 boys, 26 girls). The children ranged in age from 9 to 13 years (M = 10.89, SD = 0.99). As with past studies of the Concordia Project, maternal childhood aggression and withdrawal scores were treated as dimensions rather than categorical predictors in order to maximize power. Mothers in the present sample corresponded to the full-range of aggression and withdrawal scores. Approximately half of the mothers were considered at-risk due to high scores on aggression and/or social withdrawal in childhood. Women with high aggression and/or withdrawal were compared to the comparison mothers in the current sample on: child and maternal age at the time of testing, age at birth of first child, maternal education, and occupational prestige (Table 1). The results revealed no significant differences between high-risk mothers and comparison mothers on all variables except maternal education. Comparison mothers (M = 13.73, SD = 2.76, N = 22) obtained on average 2.03 more years of education than high-risk mothers (M = 11.70, SD = 2.18, N = 27), $t(47) = -2.87$, $p = .006$ (two-tailed)). Mothers' occupational prestige ratings, assessed by the Standard International Occupational Prestige Scale (SIOPS; Treiman, 1977), corresponded with the following

Table 1

Demographic Variables for Mothers with Histories of Aggression and/or Social Withdrawal and Comparison Mothers: Means, Standard Deviations, and t-values

	Risk mothers[a] (N=27)		Comparison mothers[b] (N=22)		
Demographic variable	M	SD	M	SD	t-value
Child Age	10.78	1.04	10.94	1.11	-0.50
Maternal Age at Testing	37.89	2.61	36.90	2.14	1.40
Maternal Age at Birth of First Child	24.67	3.06	24.58	2.60	0.11
Maternal Education (years)	11.70	2.18	13.73	2.76	-2.87*
Prestige Rating	39.74	9.67	45.53	14.38	-1.43

*$p < .05$

[a]Risk mothers were defined as those who scored above 95th percentile on Aggression and below the 75th percentile on Withdrawal (highly Aggressive), the reverse criteria for highly Withdrawn mothers, and above the 75th percentile on both Aggression and Withdrawal (mothers high on both). [b]Comparison mothers were defined as those who scored between the 25th and 75th percentiles.

types of jobs: manufacturing laborers, bank tellers, and teachers (scores ranged from 19.00 to 62.00, M = 42.47, SD = 12.30). Within-sample comparisons were also performed to ensure that the mothers and children in the current sample were similar to the larger sub-sample from which they were drawn (Table 2). No significant differences were found.

Procedure

The present study was part of a larger project in which interviews, questionnaires, and naturalistic observations were obtained over one home visit and two school visits. The home visit was conducted by one PhD-level experimenter and one research assistant both trained in the administration of the testing protocol and blind to the mothers' childhood histories. During the home visit, mother and child were videotaped during several tasks and also completed a range of questionnaires to assess socio-demographics (Appendix B) and various aspects of child functioning, including prosocial skills (Appendix C).

Before the beginning of the session, mothers were asked to read and sign an informed consent form (Appendix D), and given a description of the procedure and protocol (Appendix E). The dyads were then seated at either their kitchen table or living room sofa where the testing materials and camera equipment were set up. The interactions that were videotaped for later coding purposes were recorded using 8 mm videotapes and a Sony Video 8AF camera with directional microphone, fixed on a tripod. A stopwatch was used to time the duration of each task. Experimenters left the room for each taped interaction.

Table 2

Demographic Variables for Mothers and Children in the Current Sample and the Larger Sub-sample: Means, Standard Deviations, and z-scores

	Current Sample (N=49)		Larger Sub-Sample (N=119)		
Demographic variable	M	SD	M	SD	z-score
Child Age	10.91	1.00	10.87	0.88	-0.04
Maternal Age at Testing	37.46	2.44	37.78	2.63	0.13
Maternal Age at Birth of First Child	24.63	2.84	25.48	3.43	0.27
Maternal Education (years)	11.69	1.97	12.52	2.59	-0.37
Prestige Rating	42.47	12.30	37.67	11.92	-0.13

Note. Z-scores above 1.96 indicate significant differences.

The current study focused on a Conflict task (Serbin et al., 1998), where the dyad discussed an issue of conflict in their relationship (see Appendix F for protocol). Prior to videotaping the Conflict task, mothers and children each completed a conflict questionnaire that rated topics they considered most problematic in their relationship (e.g., homework, chores, relationship with sibling; see Appendices G and H). The common highest ranked issue between the dyad was used as the topic of conversation for the subsequent task. The dyad had 6 minutes to discuss and work toward resolving the shared conflict. This task was used to assess mothers' and children's emotion behaviours when faced with a potentially stressful situation.

Behavioural Measures and Coding

Emotion Behaviour Coding Scheme (EBCS). The EBCS (Enns & Stack, 2007; Appendix I) is a two-part observational measure of mother and child emotion behaviours during the Conflict task. Both sections of the EBCS was developed for the purposes of this study and was based in part on existing literature (e.g., Batum & Yagmurlu, 2007; Hubbard, 2001; Perez & Riggio, 2003; Planalp, 1999; Posner & Rothbart, 2000). Detailed operational definitions of all codes can be found in Appendix I.

Following filming of the Conflict task, videotaped records of the mother-child interactions were coded using the EBCS. Videotapes were viewed three times; children's emotion behaviours were coded on the first and third passes, and mothers' emotion behaviours were coded on the second pass.

Part 1 of the EBCS identifies a number of emotion behaviours of both mothers and their children, including individual facial expressions, eye movements, physical contact, body language, gestures, and vocalizations. The objective of this coding system

was to capture the frequency of emotion behaviours displayed during mother-child interactions. Codes for Part 1 were assigned second-by-second for the 6-minute period. Multiple behaviours could be recorded at a given time.

Part 2 of the EBCS attempted to identify additional child emotion behaviours displayed during the interaction. Categories that were coded include posture, leaning toward or away from mother, fidgety body and hands, self-touching, and playing with or clutching items (e.g., pencil, blocks, etc.). In addition, this component of the EBCS coded for the number of times mother and child spoke during the task. Codes were assigned during 5-second intervals of the 6-minute conflict task (i.e., 72 intervals). Again, multiple behaviours could be recorded at a given time.

Reliability. Fifteen percent of the sample was randomly selected and coded by a BA level undergraduate student who was blind to the study's hypotheses and mothers' risk status. Percentage agreement reliability (PA; agreements divided by the sum of total agreements and disagreements) and Cohen's kappa coefficients (r_k; Cohen, 1960) were calculated to assess the reliability of emotion behaviours. Cohen's kappa calculates the inter-observer agreement as a proportion of potential agreement following a correction for chance agreement (Kaplan & Saccuzzo, 2001). The overall values obtained for child emotion behaviours were r_k=0.80 in Part 1 and r_k=0.72 in Part 2. The overall value obtained for maternal emotion behaviours was r_k=0.83. These are considered very good levels of agreement above chance (Fleiss, 1981). Table 3 provides percent agreement and individual kappa coefficients for child and mother behaviour categories that were coded.

Data Reduction. After coding was completed, the frequencies of emotion behaviours in Part 1 were collapsed into 5-second intervals to better compare with the

Table 3

Percent Agreement and Kappa Coefficients for Child and Mother Behaviours

CATEGORY	PERCENT AGREEMENT (%)	KAPPA COEFFICIENTS (r_k)
Child Behaviours – Part 1		
Facial Expressions	79.6	0.74
Eye Movements	86.8	0.85
Touch Mother	94.4	0.89
Gestures	66.7	0.50
Head/Arm Movements	80.4	0.76
Vocalizations	89.1	0.88
All Behaviours (Part 1)	**83.2**	**0.80**
Child Behaviours – Part 2		
Posture	75.4	0.67
Leaning Behaviour	67.2	0.51
Hand/Body Movements	75.4	0.67
Self-Touch	75.8	0.68
Touch Objects	77.3	0.71
Voice	86.3	0.84
All Behaviours (Part 2)	**78.1**	**0.72**
Mother Behaviours – Part 1		
Facial Expressions	81.5	0.77
Eye Movements	86.5	0.84
Touch Child	76.9	0.70
Gestures	81.0	0.77
Head/Arm Movements	72.5	0.62
Vocalizations	92.2	0.92
Mother Behaviours – Part 2		
Voice	94.6	0.94
All Behaviours (Parts 1 and 2)	**85.2**	**0.83**

Note. 15% of the current sample was coded for reliability.

emotion behaviours coded in Part 2. All emotion behaviour frequencies for both the children and mothers were then summed for every variable.

Questionnaire Measures

Demographic Information Questionnaire (DIQ). The DIQ was employed to collect the participating families' socio-demographic information, including mother's current age, age at birth of first child, marital status, number of years of education, occupational status, etc. (Appendix B). This measure has proven effective in collecting participant demographics, and has been used in past studies of the Concordia Project (e.g., De Genna, Stack, Serbin, Ledingham, & Schwartzman, 2007; Serbin et al., 1998).

Social Skills Rating System (SSRS). The SSRS (Gresham & Elliott, 1990) assesses children's prosocial behaviours (e.g., empathy, assertiveness, self-control, cooperation), with higher scores reflecting better social skills (Appendix C). The subscale scores used for the current analysis (Empathy, Assertion, and Self-control) from the 34-item child self-report scale have been found to be reliable (internal consistency ranges from .51 - .77) and valid (discriminant validity ranges from .25 - .43; Gresham & Elliott, 1990).

Results

Prior to conducting statistical analyses, descriptive statistics were used to assess the normality of the distribution, skewness for each variable, and to identify outliers. In cases where there was non-normality, significant outliers were systematically brought in by converting them into a value that was two or if necessary, one standard deviation above the mean. While this method eliminated skewness for most variables, several remained skewed. Because these remaining variables tend to be naturally infrequent and therefore would typically not be normally distributed, no transformations were

conducted. Due to the number of variables included in the present study, some variables were not included and others were collapsed to reduce the number of analyses. If less than 10 children demonstrated a particular behaviour, it was deemed unrepresentative of the sample and was therefore excluded from further analysis. Tables 1 through 3 in Appendix J provide the means, standard deviations, and ranges for each individual behaviour that was coded.

Previous researchers have created variables reflecting "emotion behaviours" by clustering individual behaviours into categories (e.g., Hubbard, 2001; Planalp et al., 1996; Mangelsdorf et al., 1995). In the current study, correlational analyses were conducted for each child variable to help identify which behaviours were most associated with each other (see Appendix K, Table 1). First, intercorrelations were run on all child behaviours individually (e.g., posture, body language and movements, gestures, vocalizations, object manipulation) with each facial expression (smiling, frowning/anger, sadness/ distress, neutral, and unfelt smiling). Behaviours that were most positively associated with each facial expression were recorded. As facial expressions reflecting emotions have been found to be the easiest way to read emotions (e.g., Planalp, 1999), behaviours that correlated with smiling (positive facial expressions), frowning/anger, sadness/distress, and unfelt smiling (negative facial expressions) were the focus of the present study. After examining the correlations between the facial expressions and all other behaviours, overlap between some variables was noted (e.g., eye contact was positively correlated with both the smile and look sad/distressed variables). To address this issue, it was elected to combine the negative facial expressions into one variable by summing each of their frequencies and rerunning the correlations. Again, the combined

negative facial expressions were found to produce overlapping correlations for some of the variables. Consequently, another category was created by summing the frequencies of frowning/anger and sadness/distress without unfelt smiling. The subsequent positive correlations with this combined variable did not overlap with behaviours positively correlated with smiling. This combination of two negative facial expressions and its correlated behaviours (gaze aversion, challenging looks, tense posture, and clutching items) were designated "negative cues to emotions". In turn, smiling and its correlated behaviours (eye contact, laughing, relaxed posture) were designated "positive cues to emotion".

The same approach was taken to create "positive cues to emotion" and "negative cues to emotion" for the mothers' behaviours (see Appendix K, Table 2). Table 4 provides a brief description of the variables used to create each newly combined cues to emotion category for mothers and children.

Child regulatory variables, deemed "dimensions of emotion regulation" were created in a manner similar to that used to create the cues to emotion categories. Intercorrelations were run on all variables except facial expressions (see Appendix K, Tables 3 - 8). Each variable and their positive correlations were then examined and grouped into new variables by summing their frequencies, based on categories found in the existing emotion regulation, temperament, and coping literatures: self-soothing behaviours, activity level, inhibitory control (and failure), and behavioural inhibition (e.g., Batum & Yagmurlu, 2007; Mangelsdorf et al., 1995; Posner & Rothbart, 2000). The variable "self-soothing" was created by summing the frequency with which children touched their bodies and their clothes. The variable "activity level" was developed by

Table 4

Operational Definitions for Child and Mother Emotion Behaviour Categories

CATEGORY	DEFINITIONS
	Child Cues to Emotion
Positive Cues to Emotion	Child smiles and/or: laughs; uses eye contact; displays a relaxed posture.
Negative Cues to Emotion	Child frowns/looks upset and: averts gaze; gives mother challenging looks; clutches item(s) (e.g., pencil, tissue box); displays a tense posture. Child looks sad/distressed and: averts gaze; gives mother challenging looks; clutches item(s) (e.g., pencil, tissue box); displays a tense posture.
	Child Dimensions of Regulation
Self-soothing Behaviours	Child touches, pats, rubs, or pulls at his/her arms, torso, or legs, and/or clothing.
Activity Level	Child uses small and/or large gestures, shakes/moves head when interacting with mother, touches, rubs, or scratches at his/her own face, ears, or hair, and/or talks.
Inhibitory Control Failure	Child shifts and/or wiggles around in his/her chair, slams his/her hand on the table or mother, and/or yells at mother.
Behavioural Inhibition	Child hangs his/her head and/or exhibits a slumped posture.
	Mother Cues to Emotion
Positive Cues to Emotion	Mother smiles and/or laughs.
Negative Cues to Emotion	Mother frowns/looks upset and: uses eye contact; gives child challenging looks; uses small gestures; shakes/moves head when interacting with child; talks. Mother looks sad/distressed and/or uses eye contact, gives child challenging looks, uses small gestures, shakes/moves head when interacting with child, and/or talks.

combining the following behaviours: gestures (small and large), head movements, touching own face, and talking. An "inhibitory control failure" variable was created by summing the frequencies of yelling, shifting and wiggling, and slamming hand. Finally, "behavioural inhibition" was developed by summing slumped posture and head down/hangs head variables Table 4 provides a brief description of the variables used to create each newly combined dimensions of emotion regulation categories. Table 5 provides the intercorrelations between all maternal and child emotion behaviour categories.

Descriptive statistics on the combined emotion behaviours were used to assess the normality of the distribution, skewness, and to identify outliers. As several categories were found to be skewed, the same method used to adjust each individual variable was applied to these categories. All frequencies for the emotion behaviours were then adjusted by multiplying each emotion behaviour category by the mean duration of the Conflict task across all dyads and then dividing by the actual duration of the Conflict task for each dyad. This method was employed by Hubbard (2001) to take into account variability in duration of task completion. The means, standard deviations, and ranges for the adjusted child and mother emotion behaviours are reported in Table 6.

Hierarchical multiple regressions were used to evaluate the contribution of the following: 1) maternal childhood histories of Aggression and/or Withdrawal to the prediction of Cues to Emotion and Dimensions of Emotion Regulation; 2) maternal Cues to Emotion to the prediction of child Dimensions of Emotion regulation; and 3) child Cues to Emotion and Dimensions of Emotion Regulation to the prediction of Empathy, Assertiveness, and Self-control (components of prosocial behaviours), when entered with

Table 5

Intercorrelations between Maternal and Child Emotion Behaviours

	MATERNAL CUES TO EMOTION		CHILD CUES TO EMOTION		CHILD DIMENSIONS OF EMOTION REGULATION			
	Positive	Negative	Positive	Negative	Self-soothing Behaviours	Activity Level	Inhibitory Control Failure	Behavioural Inhibition
Maternal Cues to Emotion								
Positive	--							
Negative	-.24	--						
Child Cues to Emotion								
Positive	.53**	.20	--					
Negative	-.38**	.28^{t}	-.42**	--				
Child Dimensions of Emotion Regulation								
Self-soothing Behaviours	.01	-.24^{t}	-.29*	.27^{t}	--			
Activity Level	.23	.23	.45**	-.15	.10	--		
Inhibitory Control Failure	.31*	.06	.25^{t}	-.30*	-.07	.29*	--	
Behavioural Inhibition	.05	-.07	-.28^{t}	-.29*	-.14	-.07	.20	--

$^{t}p < 0.10$, $*p < 0.05$, $**p < 0.01$

Table 6

Frequency of Emotion Behaviours: Means, Standard Deviations, and Ranges

Emotion Behaviour Category	Mean	Standard Deviation	Range
Child Cues to Emotion			
Positive Cues to Emotion	93.03	43.37	11-213
Negative Cues to Emotion	126.63	51.53	28-222
Child Dimensions of Emotion Regulation			
Self-soothing Behaviours	2.91	4.24	0-18
Activity Level	73.06	28.11	32-150
Inhibitory Control Failure	14.19	11.86	0-43
Behavioural Inhibition	24.74	28.37	0-113
Mother Cues to Emotion			
Positive Cues to Emotion	20.14	18.82	0-71
Negative Cues to Emotion	176.30	49.40	77-293

maternal risk factors and maternal education. A separate multiple regression was conducted for each emotion category. In all regressions, predictor variables were entered chronologically, with maternal childhood histories of Aggression and Withdrawal entered separately in Step 1, and Maternal Education entered in Step 2. In addition, the interaction between levels of Aggression and Social Withdrawal was entered in the final step for each regression, in order to consider the influence of the main effects (i.e, Aggression and Withdrawal) first (Cohen & Cohen, 1983). Previous research from the Concordia Project has indicated that the presence of both childhood Aggression and Social Withdrawal together may be more strongly predictive of negative outcomes than Aggression or Withdrawal alone. Significant effects are largely reported in the text; however, if trends were in line with hypotheses and the literature, these were included. Non-significant results can be found in Appendix K. All statistical analyses were conducted using SPSS-13.0 for Windows.

Objective 1: Maternal risk predicting emotion behaviours

For the analyses related to the first objective, child Gender was entered in Step 3. Intercorrelations among child emotion behaviours, maternal risk status, and the control variables (maternal education and child gender) are provided in Table 7.

Cues to emotion. In the regression examining child positive cues to emotion, the hierarchical regression accounted for 18.2% (8.7% adjusted) of the total variance (Table 8). Gender emerged as a significant predictor at Step 3 (*Beta* = .39, $t = 2.73$, $p < .01$), accounting for 14.1% of the variance. Girls displayed more positive Cues to Emotion during the Conflict task compared to boys.

Table 7

Intercorrelations among Maternal and Child Emotion Behaviours with Maternal Risk Status, Child Prosocial Skills, and Control Variables

	MATERNAL CUES TO EMOTION		CHILD CUES TO EMOTION		CHILD DIMENSIONS OF EMOTION REGULATION			
	Positive	Negative	Positive	Negative	Self-soothing Behaviours	Activity Level	Inhibitory Control Failure	Behavioural Inhibition
Maternal Risk Status								
Aggression	-.14	.07	.01	-.08	-.08	.06	-.38**	-.06
Social Withdrawal	.06	-.22	-.02	-.21	-.33*	-.08	.08	.19
Aggression and Withdrawal	-.19	-.08	.04	-.12	.14	.18	-.21	-.14
Prosocial Skills								
Empathy	--	--	.30*	-.11	.08	.21	.13	.15
Assertiveness	--	--	.33*	-.24^{t}	.07	.28^{t}	.28^{t}	.04
Self-control	--	--	.28^{t}	-.20	.12	.29*	.20	-.01
Control Variables								
Maternal Education	-.14	.24	.15	.11	.20	.13	.22	-.03
Child Gender[a]	.10	.27^{t}	.39**	-.19	-.22	.33*	.26^{t}	-.06

$^{t}p < 0.10$, $*p < 0.05$, $**p < 0.01$

Note. [a]Child Gender: boys = 1, girls = 2.

Table 8

Maternal Childhood Levels of Aggression and/or Social Withdrawal and Children's Positive Cues to Emotion (N=49)

Variables	Beta	Sr^2	T	R^2_{ch}	F_{ch}
Step 1				0.00	0.01
Childhood Aggression	0.01	0.00	0.05		
Childhood Withdrawal	-0.02	0.00	-0.11		
Step 2				0.02	1.11
Childhood Aggression	0.02	0.00	0.14		
Childhood Withdrawal	0.03	0.00	0.20		
Maternal Education	0.16	0.02	1.05		
Step 3				0.14**	7.44**
Childhood Aggression	-0.04	0.00	-0.25		
Childhood Withdrawal	0.08	0.01	0.53		
Maternal Education	0.11	0.01	0.76		
Child Gender[a]	0.39	0.14	2.73**		
Step 4				0.02	0.88
Childhood Aggression	-0.13	0.01	-0.76		
Childhood Withdrawal	0.05	0.00	0.33		
Maternal Education	0.08	0.01	0.56		
Child Gender	0.43	0.16	2.88**		
Childhood Aggression x Withdrawal	0.16	0.02	0.94		
		R = .43	R^2_{Adj} = .09		F = 1.92

$^{t}p < 0.10$, $^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < .001$

Note. [a]Child Gender: boys = 1, girls = 2.

Dimensions of emotion regulation. For the regression examining children's Self-soothing Behaviours, the hierarchical regression accounted for 24.6% (15.8% adjusted) of the total variance (Table 9). Mothers' childhood histories of Social Withdrawal tended towards significance at Step 1 (*Beta* = -.34, t = -2.41, p = .057), explaining 11.7% of the variance. Mothers who were socially withdrawn in childhood had children who displayed less Self-soothing Behaviours. Gender was significant at Step 3, accounting for 8.2% of the variance. More boys than girls used Self-soothing Behaviours when interacting with their mothers (*Beta* = -.30, t = -2.13, $p < .05$). However, Gender changed to a trend when predicting Self-soothing Behaviours at Step 4.

In the regression examining Activity Level, the hierarchical regression accounted for 19.2% (9.8% adjusted) of the total variance (Table 10). At Step 3, Gender was found to predict Activity Level (*Beta* = .32, t = 2.17, $p < .05$), accounting for 9.5% of the variance. Girls had higher Activity Levels than boys.

In the regression examining Inhibitory Control Failure, the hierarchical regression accounted for 29.0% (20.7% adjusted) of the total variance (Table 11). At Step 1, maternal childhood Aggression emerged as a significant predictor, accounting for 14.5% of the variance. Mothers who were high on Aggression in childhood had children who displayed less Inhibitory Control Failure behaviours during the Conflict task (*Beta* = -.37, t = -2.73, $p < .01$). Gender also predicted Inhibitory Control Failure at Step 3 (*Beta* = .32, t = 2.40, $p < .05$), accounting for 9.3% of the variance. Girls exhibited more Inhibitory Control Failure during the Conflict task than boys.

Taken together, it was found that maternal childhood histories of Social Withdrawal predicted child Self-soothing Behaviours, while maternal histories of

Table 9

Maternal Childhood Levels of Aggression and/or Social Withdrawal and Children's Self-soothing Behaviours (N=49)

Variables	Beta	Sr^2	T	R^2_{ch}	F_{ch}
Step 1				0.12	3.06^t
Childhood Aggression	-0.11	0.01	-0.78		
Childhood Withdrawal	-0.34	0.11	-2.41*		
Step 2				0.01	0.59
Childhood Aggression	-0.11	0.01	-0.72		
Childhood Withdrawal	-0.30	0.08	-2.08*		
Maternal Education	0.11	0.01	0.77		
Step 3				0.08	4.55*
Childhood Aggression	-0.06	0.00	-0.43		
Childhood Withdrawal	-0.34	0.10	-2.40*		
Maternal Education	0.15	0.02	1.07		
Child Gender[a]	-0.30	0.08	-2.13*		
Step 4				0.04	2.01
Childhood Aggression	-0.20	0.02	-1.18		
Childhood Withdrawal	-0.38	0.12	-2.66*		
Maternal Education	0.11	0.01	0.77		
Child Gender	-0.24	0.05	-1.68^t		
Childhood Aggression x Withdrawal	0.24	0.04	1.42		
		R = .50	R^2_{Adj} = .16		F = 2.80*

$^t p < 0.10$, $^* p < 0.05$, $^{**} p < 0.01$, $^{***} p < .001$

Note. [a]Child Gender: boys = 1, girls = 2.

Table 10

Maternal Childhood Levels of Aggression and/or Social Withdrawal and Children's Activity Level (N=49)

Variables	Beta	Sr^2	T	R^2_{ch}	F_{ch}
Step 1				0.09	0.21
Childhood Aggression	0.05	0.00	0.32		
Childhood Withdrawal	-0.08	0.01	-0.52		
Step 2				0.01	0.64
Childhood Aggression	0.06	0.00	0.38		
Childhood Withdrawal	-0.04	0.00	-0.27		
Maternal Education	0.12	0.01	0.80		
Step 3				0.10	4.72*
Childhood Aggression	0.01	0.00	0.08		
Childhood Withdrawal	-0.04	0.00	-0.03		
Maternal Education	0.08	0.01	0.54		
Child Gender[a]	0.32	0.10	2.17*		
Step 4				0.07	3.96[t]
Childhood Aggression	-0.19	0.02	-1.11		
Childhood Withdrawal	-0.06	0.00	-0.42		
Maternal Education	0.02	0.00	0.15		
Child Gender	0.40	0.14	2.71**		
Childhood Aggression x Withdrawal	0.34	0.08	1.99[t]		
		R = .44	R^2_{Adj} = .10	F = 2.04[t]	

[t]$p < 0.10$, *$p < 0.05$, **$p < 0.01$, ***$p < .001$
Note. [a]Child Gender: boys = 1, girls = 2.

Table 11

Maternal Childhood Levels of Aggression and/or Social Withdrawal and Children's Inhibitory Control Failure (N=49)

Variables	Beta	Sr^2	T	R^2_{ch}	F_{ch}
Step 1				0.15	3.89*
Childhood Aggression	-0.37	0.14	-2.73**		
Childhood Withdrawal	0.04	0.00	0.30		
Step 2				0.05	2.88[t]
Childhood Aggression	-0.36	0.13	-2.64*		
Childhood Withdrawal	0.11	0.01	0.77		
Maternal Education	0.24	0.05	1.70[t]		
Step 3				0.09	5.78*
Childhood Aggression	-0.40	0.16	-3.10**		
Childhood Withdrawal	0.15	0.02	1.09		
Maternal Education	0.20	0.03	1.46		
Child Gender[a]	0.32	0.09	2.40*		
Step 4				0.00	0.03
Childhood Aggression	-0.42	0.11	-2.59*		
Childhood Withdrawal	0.14	0.02	1.02		
Maternal Education	0.19	0.03	1.38		
Child Gender	0.32	0.09	2.34*		
Childhood Aggression x Withdrawal	0.03	0.00	0.19		
		R = .54	R^2_{Adj} = .21	F = 3.51**	

[t]p < 0.10, *p < 0.05, **p < 0.01, ***p < .001
Note. [a]Child Gender: boys = 1, girls = 2.

Aggression predicted child Inhibitory Control Failure. In addition, Gender predicted positive Cues to Emotion, Self-soothing Behaviours, Activity Level, and Inhibitory Control Failure.

Objective 2: Maternal cues to emotion predicting child emotion behaviours

In order to reduce the number of regressions, analyses were not run for maternal Cues to Emotion predicting child Cues to Emotion, nor the Dimensions of Emotion Regulation variable "Behavioural Inhibition", as none of these behaviours emerged as significant outcomes in objective 1. Intercorrelations among maternal and child emotion behaviours, maternal risk status, and the control variables are provided in Table 7.

Dimensions of emotion regulation. In the regression examining child Self-soothing Behaviours, the hierarchical regression accounted for 20.0% (10.7% adjusted) of the total variance (Table 12). As before, mothers' childhood histories of Social Withdrawal tended towards significance at Step 1. In addition, maternal negative Cues to Emotion emerged as a predictor when entered in Step 3 (*Beta* = -.36, t = -2.59, $p < .05$), accounting for 11.6% of the variance (Table 13). Mothers who displayed a higher frequency of negative Cues to Emotion throughout the interaction had children who exhibited less Self-soothing Behaviours.

In the regression examining child Activity Level, the hierarchical regression accounted for 13.5% (3.4% adjusted) of the total variance (Table 14). At Step 3, maternal positive Cues to Emotion tended to predict child Activity Level (*Beta* = .26, t = 1.80, p = .079), accounting for 6.7% of the variance. Children had higher Activity Levels when their mothers displayed more positive Cues to Emotion.

Table 12

Maternal Positive Cues to Emotion and Children's Self-soothing Behaviours (N=49)

Variables	Beta	Sr^2	T	R^2_{ch}	F_{ch}
Step 1				0.12	3.06^t
Childhood Aggression	-0.11	0.01	-0.78		
Childhood Withdrawal	-0.34	0.11	-2.41*		
Step 2				0.01	0.59
Childhood Aggression	-0.10	0.01	-0.72		
Childhood Withdrawal	-0.30	0.08	-2.08*		
Maternal Education	0.11	0.01	0.77		
Step 3				0.00	0.04
Childhood Aggression	-0.10	0.01	-0.67		
Childhood Withdrawal	-0.30	0.08	-2.06*		
Maternal Education	0.12	0.01	0.78		
Maternal Positive Cues to Emotion	0.03	0.00	0.20		
Step 4				0.07	3.77^t
Childhood Aggression	-0.27	0.05	-1.64		
Childhood Withdrawal	-0.37	0.12	-2.51*		
Maternal Education	0.08	0.00	0.52		
Maternal Positive Cues to Emotion	0.06	0.00	0.45		
Childhood Aggression x Withdrawal	0.32	0.07	1.94^t		
		R = .45	R^2_{Adj} = .11		F = 2.15^t

$^t p < 0.10$, $*p < 0.05$, $**p < 0.01$, $***p < .001$

Table 13

Maternal Negative Cues to Emotion and Children's Self-soothing Behaviours (N=49)

Variables	Beta	Sr^2	T	R^2_{ch}	F_{ch}
Step 1				0.12	3.06^t
Childhood Aggression	-0.11	0.01	-0.78		
Childhood Withdrawal	-0.34	0.11	-2.41*		
Step 2				0.01	0.59
Childhood Aggression	-0.10	0.01	-0.72		
Childhood Withdrawal	-0.30	0.08	-2.08*		
Maternal Education	0.11	0.01	0.77		
Step 3				0.12	6.75*
Childhood Aggression	-0.08	0.01	-0.60		
Childhood Withdrawal	-0.36	0.12	-2.59*		
Maternal Education	0.18	0.03	1.29		
Maternal Negative Cues to Emotion	-0.36	0.12	-2.60*		
Step 4				0.05	2.84^t
Childhood Aggression	-0.23	0.03	-1.45		
Childhood Withdrawal	-0.41	0.14	-2.92**		
Maternal Education	0.14	0.02	0.99		
Maternal Negative Cues to Emotion	-0.33	0.10	-2.41*		
Childhood Aggression x Withdrawal	0.27	0.05	1.69^t		
		R = .54	R^2_{Adj} = .21	F = 3.54**	

$^t p < 0.10$, $^*p < 0.05$, $^{**}p < 0.01$, $^{***}p < .001$

Table 14

Maternal Positive Cues to Emotion and Children's Activity Level (N=49)

Variables	Beta	Sr^2	T	R^2_{ch}	F_{ch}
Step 1				0.01	0.21
Childhood Aggression	0.05	0.00	0.32		
Childhood Withdrawal	-0.08	0.00	-0.52		
Step 2				0.01	0.64
Childhood Aggression	0.06	0.00	0.38		
Childhood Withdrawal	-0.04	0.00	-0.27		
Maternal Education	0.12	0.01	0.80		
Step 3				0.07	3.24^t
Childhood Aggression	0.09	0.01	0.64		
Childhood Withdrawal	-0.04	0.00	-0.29		
Maternal Education	0.16	0.02	1.06		
Maternal Positive Cues to Emotion	0.26	0.07	1.80^t		
Step 4				0.05	2.22
Childhood Aggression	-0.05	0.00	-0.26		
Childhood Withdrawal	-0.09	0.01	-0.62		
Maternal Education	0.13	0.01	0.85		
Maternal Positive Cues to Emotion	0.29	0.08	2.00^t		
Childhood Aggression x Withdrawal	0.26	0.04	1.49		
		R = .37	R^2_{Adj} = .03		F = 1.34

$^t p < 0.10$, $^*p < 0.05$, $^{**}p < 0.01$, $^{***}p < .001$

In the regression examining child Inhibitory Control Failure, the hierarchical regression accounted for 28.3% (20.0% adjusted) of the total variance (Table 15). As previously found, maternal childhood Aggression emerged as a predictor at Step 1. However, when all the predictors were entered into the equation in the final step, maternal Aggression only tended to significantly predict child Inhibitory Control Failure, accounting for 6.0% of the variance (*Beta* = -.30, t = -1.90, p = .064). At Step 3, maternal positive Cues to Emotion emerged as a predictor (*Beta* = .30, t = 2.31, $p < .05$), accounting for 8.7% of the variance. Children exhibited more Inhibitory Control Failure behaviours when their mothers displayed more positive Cues to Emotion during the Conflict task.

In the regression examining child Inhibitory Control Failure when maternal negative Cues to Emotion were entered in Step 3, the hierarchical regression accounted for 20.2% (10.9% adjusted) of the total variance (Table 16). Again, maternal childhood Aggression emerged as a significant predictor in Step 1. Mothers who were Aggressive in childhood had children who employed less Inhibitory Control Failure behaviours during the interaction.

Taken together, maternal childhood histories of Aggression predicted child Inhibitory Control Failure while maternal histories of Social Withdrawal predicted child Self-soothing Behaviours when either maternal positive or negative Cues to Emotion were entered in Step 3. In addition, maternal positive Cues to Emotion predicted children's Activity Level and Inhibitory Control Failure, while maternal negative Cues to Emotion predicted Self-soothing Behaviours.

Table 15

Maternal Positive Cues to Emotion and Children's Inhibitory Control Failure (N=49)

Variables	Beta	Sr^2	T	R^2_{ch}	F_{ch}
Step 1				0.15	3.89*
Childhood Aggression	-0.37	0.14	-2.73**		
Childhood Withdrawal	0.04	0.00	0.30		
Step 2				0.05	2.88^t
Childhood Aggression	-0.36	0.12	-2.64*		
Childhood Withdrawal	0.11	0.01	0.77		
Maternal Education	0.24	0.05	1.70^t		
Step 3				0.09	5.32*
Childhood Aggression	-0.31	0.10	-2.41*		
Childhood Withdrawal	0.11	0.01	0.80		
Maternal Education	0.28	0.07	2.08*		
Maternal Positive Cues to Emotion	0.30	0.09	2.31*		
Step 4				0.00	0.04
Childhood Aggression	-0.30	0.06	-1.90^t		
Childhood Withdrawal	0.11	0.01	0.81		
Maternal Education	0.28	0.07	2.06*		
Maternal Positive Cues to Emotion	0.30	0.08	2.24*		
Childhood Aggression x Withdrawal	-0.03	0.00	-0.19		
		R = .53	R^2_{Adj} = .20		F = 3.40*

$^t p < 0.10$, $^*p < 0.05$, $^{**}p < 0.01$, $^{***}p < .001$

Table 16

Maternal Negative Cues to Emotion and Children's Inhibitory Control Failure (N=49)

Variables	Beta	Sr^2	T	R^2_{ch}	F_{ch}
Step 1				0.15	3.89*
Childhood Aggression	-0.37	0.14	-2.73**		
Childhood Withdrawal	0.04	0.00	0.30		
Step 2				0.05	2.88^t
Childhood Aggression	-0.36	0.13	-2.64*		
Childhood Withdrawal	0.11	0.01	0.77		
Maternal Education	0.24	0.06	1.70^t		
Step 3				0.00	0.14
Childhood Aggression	-0.36	0.13	-2.63*		
Childhood Withdrawal	0.12	0.01	0.81		
Maternal Education	0.23	0.05	1.58		
Maternal Negative Cues to Emotion	0.05	0.00	0.38		
Step 4				0.00	0.17
Childhood Aggression	-0.32	0.07	-1.93^t		
Childhood Withdrawal	0.13	0.01	0.87		
Maternal Education	0.24	0.05	1.61		
Maternal Negative Cues to Emotion	0.05	0.00	0.32		
Childhood Aggression x Withdrawal	-0.07	0.00	-0.41		
		R = .45	R^2_{Adj} = .11	F = 2.17^t	

$^t p < 0.10$, $*p < 0.05$, $**p < 0.01$, $***p < .001$

Objective 3: Emotion behaviours predicting prosocial skills

For the analyses related to the third objective, all child emotion behaviour categories (i.e., Cues to Emotion and Dimensions of Emotion Regulation) were entered in Step 3 in the prediction of the following subscales of the SSRS: Empathy, Assertiveness, and Self-control. Intercorrelations between child emotion behaviours and these prosocial skills are provided in Table 7.

Empathy. In the regression examining children's level of Empathy, the hierarchical regression accounted for 19.8% (10.3% adjusted) of the total variance (Table 17). At Step 1, maternal Withdrawal in childhood tended to predict their children's Empathy skills (*Beta* = -.30, t = -2.14, p = .066), accounting for 11.4% of the variance. Mothers who were Withdrawn in childhood had children who rated themselves as having less Empathy than their peers. It is important to note that maternal Social Withdrawal tended towards significance in Step 1 for all regressions run in the prediction of children's Empathy (see Tables 4 - 7, Appendix L). Positive Cues to Emotion also predicted Empathy at Step 3 (*Beta* = .29, t = 2.07, $p < .05$), accounting for 8.0% of the variance. Children who displayed more positive Cues to Emotion during the Conflict task rated themselves as being more Empathic than their peers.

Assertiveness. In the regression examining Assertiveness, the hierarchical regression accounted for 18.6% (8.9% adjusted) of the total variance (Table 18). At Step 3, positive Cues to Emotion predicted Assertiveness (*Beta* = .31, t = 2.20, $p < .05$), accounting for 9.2% of the variance, indicating that children who displayed more positive Cues to Emotion during the Conflict task rated themselves as being more Assertive than their peers. Conversely, when negative Cues to Emotion was entered in Step 3, it was

Table 17

Child Positive Cues to Emotion and Empathy (N=48)

Variables	Beta	Sr^2	T	R^2_{ch}	F_{ch}
Step 1				0.11	2.90^t
Childhood Aggression	0.12	0.02	0.87		
Childhood Withdrawal	-0.30	0.09	-2.14*		
Step 2				0.00	0.18
Childhood Aggression	0.13	0.02	0.90		
Childhood Withdrawal	-0.28	0.07	-1.90^t		
Maternal Education	0.06	0.00	0.42		
Step 3				0.08	4.30*
Childhood Aggression	0.12	0.02	0.89		
Childhood Withdrawal	-0.29	0.08	-2.03*		
Maternal Education	0.02	0.00	0.12		
Child Positive Cues to Emotion	0.29	0.08	2.07*		
Step 4				0.00	0.01
Childhood Aggression	0.13	0.01	0.79		
Childhood Withdrawal	-0.29	0.07	-1.94^t		
Maternal Education	0.02	0.00	0.13		
Child Positive Cues to Emotion	0.29	0.08	2.05*		
Childhood Aggression x Withdrawal	-0.02	0.00	-0.10		
		R = .45	R^2_{Adj} = .10	F = 2.07^t	

$^t p < 0.10$, $^*p < 0.05$, $^{**}p < 0.01$, $^{***}p < .001$

Table 18

Child Positive Cues to Emotion and Assertiveness Skills (N=48)

Variables	Beta	Sr^2	T	R^2_{ch}	F_{ch}
Step 1				0.05	1.24
Childhood Aggression	0.15	0.02	1.03		
Childhood Withdrawal	-0.16	0.02	-1.07		
Step 2				0.04	1.97
Childhood Aggression	0.17	0.03	1.16		
Childhood Withdrawal	-0.09	0.01	-0.63		
Maternal Education	0.21	0.04	1.40		
Step 3				0.09	4.86*
Childhood Aggression	0.16	0.03	1.17^t		
Childhood Withdrawal	-0.10	0.01	-0.71		
Maternal Education	0.16	0.02	1.11		
Child Positive Cues to Emotion	0.31	0.09	2.20*		
Step 4				0.00	0.05
Childhood Aggression	0.18	0.02	1.09		
Childhood Withdrawal	-0.10	0.01	-0.64		
Maternal Education	0.17	0.02	1.12		
Child Positive Cues to Emotion	0.31	0.09	2.18*		
Childhood Aggression x Withdrawal	-0.04	0.00	-0.22		
			R = .43	R^2_{Adj} = .09	F = 1.92

$^t p < 0.10$, $*p < 0.05$, $**p < 0.01$, $***p < .001$

found that children who displayed more negative Cues to Emotion rated themselves as being less Assertive than their peers (*Beta* = -.29, t = -2.02, $p < .05$), accounting for 7.9% of the variance (Table 19).

In the regression examining children's Assertiveness, the hierarchical regression accounted for 15.6% (5.6% adjusted) of the total variance (Table 20). Child Activity Level tended to predicted Assertiveness at Step 3 (*Beta* = .25, t = 1.73, p = .091), accounting for 6.0% of the variance. Children with higher Activity Levels rated themselves as being more Assertive than their peers.

In the regression examining children's Assertiveness, the hierarchical regression accounted for 20.5% (11.1% adjusted) of the total variance (Table 21). At Step 3, Inhibitory Control Failure emerged as a predictor, accounting for 11.3% of the variance (*Beta* = .38, t = 2.47, $p < .05$). Children who displayed more Inhibitory Control Failure during the Conflict task rated themselves as being more Assertive than their peers.

Self-control. In the regression examining children's ratings of their Self-control skills, the hierarchical regression accounted for 13.4% (3.1% adjusted) of the total variance (Table 22). At Step 3, positive Cues to Emotion tended to predict Self-control skills (*Beta* = .26, t = 1.82, p = .076), accounting for 6.6% of the variance. Children who exhibited more positive Cues to Emotion while interacting with their mothers rated themselves as having more Self-control than their peers. Conversely, negative Cues to Emotion tended to predict Self-control skills (*Beta* = -.25, t = -1.72, p = .093), accounting for 6.0% of the variance (Table 23). Children who displayed more negative Cues to Emotion during the Conflict task rated themselves as having less Self-control than their peers.

Table 19

Child Negative Cues to Emotion and Assertiveness Skills (N=48)

Variables	Beta	Sr^2	T	R^2_{ch}	F_{ch}
Step 1				0.05	1.24
Childhood Aggression	0.15	0.02	1.03		
Childhood Withdrawal	-0.16	0.02	-1.07		
Step 2				0.04	1.97
Childhood Aggression	0.17	0.03	1.16		
Childhood Withdrawal	-0.09	0.01	-0.63		
Maternal Education	0.21	0.04	1.40		
Step 3				0.08	4.09*
Childhood Aggression	0.14	0.02	1.02		
Childhood Withdrawal	-0.15	0.02	-1.01		
Maternal Education	0.23	0.05	1.57		
Child Negative Cues to Emotion	-0.29	0.08	-2.02*		
Step 4				0.00	0.09
Childhood Aggression	0.17	0.02	1.01		
Childhood Withdrawal	-0.14	0.02	-0.92		
Maternal Education	0.24	0.05	1.58		
Child Negative Cues to Emotion	-0.29	0.08	-2.02*		
Childhood Aggression x Withdrawal	-0.05	0.00	-0.29		
		R = .42	R^2_{Adj} = .08		F = 1.76

$^{t}p < 0.10$, $^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < .001$

Table 20

Child Activity Level and Assertiveness Skills (N=48)

Variables	Beta	Sr^2	T	R^2_{ch}	F_{ch}
Step 1				0.05	1.24
Childhood Aggression	0.15	0.02	1.03		
Childhood Withdrawal	-0.16	0.02	-1.07		
Step 2				0.04	1.97
Childhood Aggression	0.17	0.03	1.16		
Childhood Withdrawal	-0.09	0.01	-0.63		
Maternal Education	0.21	0.04	1.40		
Step 3				0.06	2.99^t
Childhood Aggression	0.16	0.03	1.12		
Childhood Withdrawal	-0.08	0.01	-0.53		
Maternal Education	0.19	0.03	1.26		
Child Activity Level	0.25	0.06	1.73^t		
Step 4				0.01	0.23
Childhood Aggression	0.21	0.03	1.19		
Childhood Withdrawal	-0.06	0.00	-0.40		
Maternal Education	0.20	0.03	1.31		
Child Activity Level	0.26	0.06	1.77^t		
Childhood Aggression x Withdrawal	-0.08	0.01	-0.48		
		R = .40	R^2_{Adj} = .06		F = 1.56

$^t p < 0.10$, $^* p < 0.05$, $^{**} p < 0.01$, $^{***} p < .001$

Table 21

Child Inhibitory Control Failure and Assertiveness Skills (N=48)

Variables	Beta	Sr^2	T	R^2_{ch}	F_{ch}
Step 1				0.05	1.24
Childhood Aggression	0.15	0.02	1.03		
Childhood Withdrawal	-0.16	0.02	-1.07		
Step 2				0.04	1.97
Childhood Aggression	0.17	0.03	1.16		
Childhood Withdrawal	-0.09	0.01	-0.63		
Maternal Education	0.21	0.04	1.40		
Step 3				0.11	6.10*
Childhood Aggression	0.31	0.08	2.06*		
Childhood Withdrawal	-0.13	0.02	-0.92		
Maternal Education	0.13	0.01	0.86		
Child Inhibitory Control Failure	0.38	0.11	2.47*		
Step 4				0.00	0.00
Childhood Aggression	0.31	0.06	1.76^t		
Childhood Withdrawal	-0.13	0.02	-0.88		
Maternal Education	0.13	0.01	0.84		
Child Inhibitory Control Failure	0.38	0.11	2.43*		
Childhood Aggression x Withdrawal	0.00	0.00	-0.00		
		R = .45	R^2_{Adj} = .11		F = 2.17^t

$^t p < 0.10$, $*p < 0.05$, $**p < 0.01$, $***p < .001$

Table 22

Child Positive Cues to Emotion and Self-control (N=48)

Variables	Beta	Sr^2	T	R^2_{ch}	F_{ch}
Step 1				0.05	1.12
Childhood Aggression	0.11	0.01	0.77		
Childhood Withdrawal	-0.18	0.03	-1.19		
Step 2				0.02	0.98
Childhood Aggression	0.13	0.02	0.85		
Childhood Withdrawal	-0.13	0.02	-0.85		
Maternal Education	0.15	0.02	0.99		
Step 3				0.07	3.30^t
Childhood Aggression	0.12	0.01	0.84		
Childhood Withdrawal	-0.14	0.02	-0.92		
Maternal Education	0.11	0.01	0.73		
Child Positive Cues to Emotion	0.26	0.07	1.82^t		
Step 4				0.00	0.00
Childhood Aggression	0.11	0.01	0.66		
Childhood Withdrawal	-0.14	0.02	-0.90		
Maternal Education	0.11	0.01	0.70		
Child Positive Cues to Emotion	0.26	0.07	1.79^t		
Childhood Aggression x Withdrawal	0.01	0.00	0.06		
		R = .37	R^2_{Adj} = .03		F = 1.30

$^t p < 0.10$, $^*p < 0.05$, $^{**}p < 0.01$, $^{***}p < .001$

Table 23

Child Negative Cues to Emotion and Self-control (N=48)

Variables	Beta	Sr^2	T	R^2_{ch}	F_{ch}
Step 1				0.05	1.12
Childhood Aggression	0.11	0.01	0.77		
Childhood Withdrawal	-0.18	0.03	-1.19		
Step 2				0.02	0.98
Childhood Aggression	0.13	0.02	0.85		
Childhood Withdrawal	-0.13	0.02	-0.85		
Maternal Education	0.15	0.02	0.99		
Step 3				0.06	2.96^t
Childhood Aggression	0.10	0.01	0.71		
Childhood Withdrawal	-0.18	0.03	-1.18		
Maternal Education	0.17	0.03	1.11		
Child Negative Cues to Emotion	-0.25	0.06	-1.72^t		
Step 4				0.00	0.00
Childhood Aggression	0.10	0.01	0.60		
Childhood Withdrawal	-0.18	0.03	-1.14		
Maternal Education	0.17	0.03	1.09		
Child Negative Cues to Emotion	-0.25	0.06	-1.70^t		
Childhood Aggression x Withdrawal	-0.00	0.00	-0.01		
		R = .36	R^2_{Adj} = .02		F = 1.23

$^t p < 0.10$, $^*p < 0.05$, $^{**}p < 0.01$, $^{***}p < .001$

In the regression examining child's self-rated Self-control, the hierarchical regression accounted for 13.7% (3.4% adjusted) of the total variance (Table 24). At Step 3, child Activity Level emerged as a predictor, though a trend, accounting for 6.8% of the variance (*Beta* = .26, $t = 1.84$, $p = .073$). Children with higher Activity Levels rated themselves as having more Self-control than their peers.

In the regression examining children's Self-control skills, the hierarchical regression accounted for 13.2% (2.9% adjusted) of the total variance (Table 25). Child Inhibitory Control Failure tended to predict self-rated Self-control skills at Step 3 (*Beta* = .28, $t = 1.77$, $p = .084$), account for 6.3% of the variance. Children who displayed more Inhibitory Control Failure during the Conflict task rated themselves as having more Self-control than their peers.

Taken together, Empathy was predicted by maternal histories of Social Withdrawal and child positive Cues to Emotion. Assertiveness was predicted by positive and negative Cues to Emotion, Activity Level, and Inhibitory Control Failure. Finally, Self-control was predicted by positive and negative Cues to Emotion, Activity Level, and Inhibitory Control Failure.

Discussion

The present study was designed to investigate the role of maternal histories of aggression and/or social withdrawal and socialization of emotion in the prediction of emotion behaviours in middle-childhood, as well as the role children's emotion behaviours play in the development of prosocial skills. The results partially support the hypotheses and highlight several key components of the development of emotion and prosocial behaviours in middle-childhood. In general, while maternal histories of

Table 24

Child Activity Level and Self-control (N=48)

Variables	Beta	Sr^2	T	R^2_{ch}	F_{ch}
Step 1				0.05	1.12
Childhood Aggression	0.11	0.01	0.77		
Childhood Withdrawal	-0.18	0.03	-1.19		
Step 2				0.02	0.98
Childhood Aggression	0.13	0.02	0.85		
Childhood Withdrawal	-0.13	0.02	-0.85		
Maternal Education	0.15	0.02	0.99		
Step 3				0.07	3.38^t
Childhood Aggression	0.11	0.01	0.80		
Childhood Withdrawal	-0.11	0.01	-0.75		
Maternal Education	0.13	0.01	0.84		
Child Activity Level	0.26	0.07	1.84^t		
Step 4				0.00	0.06
Childhood Aggression	0.14	0.01	0.79		
Childhood Withdrawal	-0.10	0.01	-0.67		
Maternal Education	0.13	0.01	0.85		
Child Activity Level	0.27	0.07	1.83^t		
Childhood Aggression x Withdrawal	-0.04	0.00	-0.24		
			R = .37	R^2_{Adj} = .03	F = 1.34

$^t p < 0.10$, $^* p < 0.05$, $^{**} p < 0.01$, $^{***} p < .001$

Table 25

Child Inhibitory Control Failure and Self-control (N=48)

Variables	Beta	Sr^2	T	R^2_{ch}	F_{ch}
Step 1				0.05	1.12
Childhood Aggression	0.11	0.01	0.77		
Childhood Withdrawal	-0.18	0.03	-1.19		
Step 2				0.02	0.98
Childhood Aggression	0.13	0.02	0.85		
Childhood Withdrawal	-0.13	0.02	-0.85		
Maternal Education	0.15	0.02	0.99		
Step 3				0.06	3.14^t
Childhood Aggression	0.23	0.04	1.47		
Childhood Withdrawal	-0.16	0.02	-1.05		
Maternal Education	0.09	0.01	0.57		
Child Inhibitory Control Failure	0.28	0.06	1.77^t		
Step 4				0.00	0.05
Childhood Aggression	0.21	0.03	1.14		
Childhood Withdrawal	-0.17	0.02	-1.06		
Maternal Education	0.08	0.01	0.52		
Child Inhibitory Control Failure	0.28	0.06	1.76^t		
Childhood Aggression x Withdrawal	0.04	0.00	0.22		
			R = .36	R^2_{Adj} = .03	F = 1.28

$^t p < 0.10$, $^*p < 0.05$, $^{**}p < 0.01$, $^{***}p < .001$

childhood aggression and/or social withdrawal did not predict children's cues to emotion, maternal risk status did receive some support in predicting children's regulatory behaviours. Mothers' socialization of emotion, measured by maternal cues to emotion, was also associated with several dimensions of emotion regulation in their children. Finally, it was found that children's emotion behaviours (both cues to emotion and dimensions of emotion regulation) were associated with of prosocial skills, specifically empathy, assertiveness, and self-control. Given the distinct contributions of emotionality and emotion-behaviour regulation make when studied individually (e.g., Eisenberg et al., 1997), the findings are discussed across these two separate, yet complementary components of emotional competence.

The hypotheses regarding maternal histories of aggression and/or social withdrawal in the prediction of child cues to emotion was not supported. This was surprising, as previous research within this sample has found that maternal risk status has been associated with a myriad of developmental, behavioural, and health problems in offspring (see Stack et al., 2005 for review). The lack of findings may be due to several possibilities. It is possible that maternal histories of aggression and/or social withdrawal may not influence their children's cues to emotion. Methodological shortcomings of the study, such as a small sample size, how emotionality was measured (assessing cues to emotion instead of facial expressions alone), or the choice of task within which it was measured may also have played a role. Furthermore, research examining emotional competence at different developmental periods suggests that children in middle-childhood will have developed the ability to "mask" the display of emotions by this age (Denham et al., 2002; Saarni, 1999), as they expect that negative expressions of emotion

will displease their parents (Denham et al., 2002; Zeman & Garber, 1996). Consequently, children in this sample may have been "masking" their expression of emotions.

While maternal histories of aggression and/or social withdrawal did not predict children's cues to emotion, maternal histories of social withdrawal was predictive of children's empathy. Mothers who were socially withdrawn in childhood had children who rated themselves as being less empathic. Although less is known about the impact of social withdrawal on parenting ability in mothers, some studies have found that these mothers tend to be more unresponsive when interacting with their children (Eisenberg, 2003; Serbin et al., 2002). As empathy is generally defined as one's ability to understand and share how another is feeling (e.g., Eisenberg, 2003), one might expect that children who interact with an unresponsive parent would not receive adequate modeling or coaching for the development of empathic skills. Maternal childhood histories of social withdrawal and its relation to children's empathy-related behaviour has not been examined, suggesting a potential link that may inspire further research regarding maternal risk status and the development of empathy in offspring.

In addition to maternal childhood histories of social withdrawal, children's cues to emotion were also associated with self-reported empathy. Consistent with the hypotheses, children who displayed more positive cues to emotion during the Conflict task rated themselves as having higher levels of empathy. As empathy research tends to focus on negative emotions interrupting empathic responding (Eisenberg, 2003; Eisenberg et al., 1996; Roberts & Strayer, 1996), the present finding highlights the importance of examining the influence of positive affect on children's empathic skills.

Child cues to emotion were also associated with other components of prosocial behaviour. Children who displayed more negative cues to emotion during the Conflict task rated themselves as being less assertive and having poorer self-control than their peers, while children who displayed more positive cues to emotion rated themselves as being more assertive and having better self-control. These findings support the literature, whereby children who display more negative emotions when interacting with their peers were found to demonstrate less behaviours associated with assertiveness and self-control, including poorer leadership skills, difficulties controlling their temper or compromising in conflict situations, and problems with initiating social interactions and making friends (Gresham & Elliot, 1990; Wocadlo & Reiger, 2006). Conversely, children who display more positive emotions are better at these particular behaviours (Dougherty, 2006; Caldarella & Merrell, 1997; Gresham & Elliot, 1990; Wied, Branje, & Meeus, 2007).

Although children's cues to emotion were not associated with maternal childhood histories of aggression and/or social withdrawal, some support was found for maternal risk status as a predictor of regulatory behaviours. Maternal childhood histories of aggression predicted children's inhibitory control failure; however, this result was contrary to the hypothesis, as mothers who were aggressive in childhood had children who displayed *less* inhibitory control failure. Given the nature of the behaviours used to create inhibitory control failure (shifting/fidgeting, yelling, slamming hand on table), it was expected that children would have displayed more inhibitory control failure in the presence of mothers with histories of aggression, as found in other intergenerational research examining the transmission of aggressive and/or antisocial behaviours across generations (e.g., Conger, Neppl, Kim, & Scaramella, 2003; Thornberry et al., 2003).

However, this finding was not overly surprising as previous research within the Concordia Project has not been able to predict aggressivity in children of mothers with childhood histories of aggression (e.g., Serbin et al., 2002).

Maternal histories of social withdrawal also tended to predict a dimension of emotion regulation in their children. Mothers who were socially withdrawn in childhood had children who displayed fewer self-soothing behaviours, which was in line with the hypothesis. Self-soothing behaviours, a coping strategy commonly assessed in infants, are characterized by repeated handling of the child's own clothing or body and utilized by the child to control their emotional arousal (Mangelsdorf et al., 1995). Findings from the present study suggest that this style of coping behaviour may continue to be an emotion regulation strategy employed in middle-childhood, providing support for the continuity of regulatory behaviours across developmental stages (e.g. Rothbart et al., 2001). Furthermore, these results suggest that the development of such coping behaviours may be influenced by maternal behavioural histories and subsequent parenting styles (e.g., unresponsiveness parenting; Eisenberg, 2003; Serbin et al., 2002). Findings also suggest that further investigation of the relationship between maternal risk status and its effect on children's regulatory strategies is warranted.

Although it is unclear from the literature as to how maternal childhood behaviours affect parenting abilities, it is well supported that emotion socialization behaviours (however acquired), are influential ways for parents to teach children how to express and control their emotions (Eisenberg & Fabes, 1994; Eisenberg et al., 1998a). The present study assessed mothers' positive and negative cues to emotion (identified by others as a way for parents to socialize emotions; e.g., Parke, 1994) on dimensions of children's

emotion regulation. Results in line with this objective were mixed. First, mothers who displayed more negative cues to emotion during the Conflict task had children who displayed less self-soothing behaviours. This finding complements the small number of studies supporting the influence of mothers' own emotional displays on their children's regulatory strategies (Melnick & Hinshaw, 2000). However, it should be noted that it is uncertain if mothers in the current study were expressing emotions independently of their children's emotions. For instance, they may have also been reacting to their children's emotion behaviours, or their own personality/temperament characteristics may have been playing a role. Further research is required to help clarify this issue.

Maternal positive cues to emotion were also predictive of children's activity level and inhibitory control. Contrary to the hypothesis, mothers who displayed more positive cues to emotion during the Conflict task had children who displayed higher activity levels. Activity level is generally defined in the temperament literature as a measure of gross motor activity in infants and toddlers (Rothbart et al., 2001). As this measure tends to be associated with impulsivity (and therefore poor regulatory control), it was expected that greater activity levels would receive fewer maternal positive displays. However, it could be that the behaviours combined to create the activity level category (e.g., head movements, gestures, talking) may be a regulatory strategy better characterized as engagement in the interaction. It has been found that less use of such behaviours can be interpreted as disengagement, suggestive of avoidant regulatory strategies utilized in social interactions (Perez & Riggio, 2003).

Results involving inhibitory control failure produced findings contradictory to the hypotheses: mothers who displayed more positive cues to emotion had children who

displayed more inhibitory control failure. As inhibitory control failure was not measured concurrently with expressions of emotion, it raises the possibility that behaviours used to define inhibitory control failure may not have occurred in combination with negative affect alone. Perhaps behaviours such as yelling and/or slamming a hand occurred when the child was particularly jubilant (i.e., exhibiting positive cues to emotion). Emerging research supports this supposition, suggesting that extreme positive expressions of emotion may be accompanied by poorer regulatory control (e.g., Rydell et al., 2003). Subsequently, the behaviours used to reflect inhibitory control failure may actually be better represented by a different emotion regulation term, such as "positive anticipation", which is defined as having so much excitement, that the child can hardly contain him/ herself (Rothbart et al., 2001). Findings regarding activity level and inhibitory control failure in the prediction of assertiveness and self-control further suggest that these particular dimensions of emotion regulation may be inappropriately defined. Examining the relationship between cues to emotion and these regulatory behaviours may help clarify whether activity level and inhibitory control failure are more associated with positive or negative cues to emotion, as well as better prosocial skills, in middle-childhood.

Despite results contrary to the hypotheses, the dimensions of emotion regulation findings support the general notion that maternal socialization of emotion behaviours, including both positive and negative emotional expressions, influence how children learn to regulate emotions (e.g., Gottman, Katz, & Hooven, 1996). In turn, how children internalize the socialization of regulatory behaviours directly affects their social

functioning, including the development of prosocial skills (Eisenberg et al., 1996; 1998b; 2000).

Across objectives of the study, more support was found for the emotion regulation behaviours than for cues to emotion. This coincides with recent research purporting that the key to successful emotional competence is the regulation of both negative and positive emotional expressions (e.g., Eisenberg et al., 2001; Roberts & Strayer, 1996; Rydell et al., 2003). The relationship between emotionality and emotion-regulation has been likened to an inverted-U: when emotional expressiveness is too low *or* too high, it disrupts appropriate responding. Therefore, regulatory strategies are necessary for moderating emotional expressions (Roberts & Strayer, 1996; Salovey, Hsee, & Mayer, 1993). This model suggests that while treating emotionality and emotion-regulation as separate phenomenon is beneficial for isolating unique variance (e.g., Batum & Yagmurlu, 2007), together they have an additive effect on children's outcomes (Eisenberg et al., 2001). Future research examining the interaction between emotionality and emotion-behaviour regulation will help to further identify how emotion behaviours influence children's social functioning.

Taken together, findings from the present study substantiate and add to several domains of emotional development research. First, although mixed, results suggest that mothers' histories of aggression and/or social withdrawal play a role in the development of children's emotion-regulation behaviours, adding to the growing list of domains that are potentially affected by maternal risk status. Second, this study partly corroborates the literature regarding the importance of the socialization of emotion, adding to the few studies that have found maternal expressions of emotion to influence children's

emotional development. A next step in this line of research could be to investigate effects of maternal histories of aggression and/or social withdrawal on maternal cues to emotion to determine whether socially deviant behaviours in childhood lead to mothers incurring problematic parenting styles (e.g., Serbin & Karp, 2003). Moreover, whether directly or indirectly affected by mothers' emotion behaviours (past and present), findings from this study provide some support that both emotionality and emotion-behaviour regulation have effects on the development of children's prosocial behaviours in middle-childhood. Finally, by focusing solely on emotion behaviours, the findings from the present study build on the socio-emotional literature by helping to tease apart which aspects of prosocial behaviour (empathy, assertiveness, self-control) are influenced by overt expressions of emotions and differing regulatory strategies (Dougherty, 2006; Putallaz, Costanzo, Grimes, & Sherman, 1998). Such results imply the potential for more specific pathways to be examined in the study of social (in)competence and peer status in middle-childhood.

Beyond examining maternal psychosocial risk variables and socialization behaviours, child gender and maternal education were also included as predictors of children's emotion and prosocial behaviours. With respect to gender, findings were mixed. While girls were found to use more positive cues to emotion than boys, they were also found to utilize more active and potentially dysregulated forms of emotion-regulation behaviours (activity level and inhibitory control failure). Conversely, boys were found to use self-soothing behaviours more often than girls. However, gender was not a focus of the current study as the sample size limited the number of analyses

examined. Future research on the relationship between emotion, prosocial behaviour, and gender within this sample is warranted.

Surprisingly, no findings emerged with respect to maternal education. Although maternal education has often emerged as a protective factor for children in at-risk populations (e.g., Serbin et al., 2002), research suggests that emotion behaviours may be less affected by maternal levels of education in school-age children. By middle-childhood, cognitive and problem-solving coping strategies are more frequently employed to regulate emotions, and children have learned to mask the inappropriate expressions of emotion more adaptively than toddlers and preschoolers (Denham et al., 2002). Therefore, cognitive aspects of emotion, which are more associated with emotional understanding, may have a stronger relationship with maternal education levels than emotion behaviours (Halle, 2003; Lemerise & Arsenio, 2000; Saarni, 1999).

The argument that emotional understanding and cognitive processes may be more important in middle-childhood than emotion behaviours may partly explain the lack of findings for children's cues to emotion in this study. When children are younger, they rely more on overt emotion behaviours to express and understand emotions (Denham et al., 2002). By middle-childhood however, children increasingly use their cognitive abilities to understand, recognize, and accept emotional experiences (Denham et al., 2002; Halberstadt et al., 2001). In addition, school-age children receive increasing pressure to regulate negative emotions, but not their positive ones (Roberts & Strayer, 1996). This may partly explain why more positive than negative expressions were found to be significant in the current study.

A particular strength of this study was its use of both observational and self-report methods. Although the use of child self-report measures is argued by some to be a limitation (e.g., Halle, 2003), it is unclear in the literature just how well third parties are able to rate prosocial behaviours, such as empathy (Roberts & Strayer, 1996). Furthermore, despite empathy being an important indicator of children's prosocial behaviour, the SSRS (Gresham & Elliot, 1990) does not include an empathy subscale in the parent or teacher forms. Consequently, self-reports of children's prosocial behaviours was the optimal choice.

The present study took a first step in examining emotional competence within the Concordia Project. Investigating co-occurrences of emotion behaviours within mothers and children individually, as well as between the dyads, would be an exciting next step. This would allow for the assessment of interactions between emotionality and emotion-behaviour regulation in children, socialization of emotion in the form of emotional reactions from mothers to children, as well as bidirectional effects. Another important direction could be the inclusion of emotional understanding in the components of emotional competence assessed. The current study is also a stepping stone for measuring the development and socialization of emotional competence longitudinally. Investigating mother-child interactions from preschool through adolescence will bring to light continuities and discontinuities in emotional development within this high-risk sample and others, potentially revealing mechanisms for direct and indirect pathways contributing to the intergenerational transfer of risk.

Findings from the present study may also have implications for intervention programs designed to target socio-emotional skills and development. While short-term

gains have been shown for many of these programs, there is considerable controversy over *how* positive outcomes are produced, and whether these changes persist over the long-term (Barnett, 1995).

Taken together, the present study offers several unique contributions to the literature, potentially engendering interest for new research directions in the study of socio-emotional development in middle-childhood. First, how facets of children's emotion behaviours were affected by maternal risk status was examined. To date, this appears to be one of the first studies to assess these particular emotion behaviours within an intergenerational sample. Second, few studies have examined the socialization of emotion (especially with a focus on maternal emotional expressions) in middle-childhood. Together, the results highlight the importance of maternal childhood histories and the socialization of emotion in teaching children to regulate their emotion behaviours, whether negative *or* positive. Third, results from the present study highlight the relationship between emotion behaviours and prosocial skills such as empathy, assertiveness, and self-control, suggesting that specific relationships may exist between particular emotional behaviours and components of social competence. Finally, the results underscore the importance of studying positive emotion behaviours in both mothers and children, suggesting that future research would benefit from deeper investigations into the "happier side" of development and its effect on social, behavioural, and cognitive functioning.

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Appendix A

Sample Items from the Pupil Evaluation Inventory

Aggression Items

3. Those who can't sit still.

4. Those who try to get other people into trouble.

8. Those who play the clown and get others to laugh.

9. Those who start a fight over nothing.

20. Those who bother people when they're trying to work.

23. Those who are rude to the teacher.

24. Those who are mean and cruel to other children.

Withdrawal Items

5. Those who are too shy to make friends easily.

10. Those who never seem to be having a good time.

11. Those who are upset when called on to answer questions in class.

13. Those who are usually chosen last to join in group activities.

17. Those who have very few friends.

28. Those who often don't want to play.

32. Those who aren't noticed much.

Appendix B

Demographic Questionnaire

N° d'identification _____

Date: _____

L'INDIVIDU DANS SON MILIEU

Renseignements sociodémographiques

Tous ces renseignements sont traités de façon totalement confidentielle

1. **Sexe** ☐ M ☐ F

2. **Âge** _____ ans Date de naissance AN ____ MO ____ JR ____

3. **État civil**

Note: "Conjoints de fait": désigne deux personnes qui vivent ensemble comme si elles étaient mariées. Il s'agit de ton état actuel; même si tu es légalement divorcé(e) ou autre, mais que tu vis avec un(e) conjoint(e) présentement, inscris conjoint de fait.

		Depuis quelle date?
☐ Célibataire	☐ Conjoint	
☐ Marié(e)	☐ Séparé(e)	AN MO JR
☐ Divorcé(e)	☐ Veuf/veuve	_____ _____ _____

4. **Nombre d'enfants** _____

Si enceinte (ou conjointe enceinte), bébé attendu pour: ____ ____ (AN MO)

Sinon, prévoyez-vous avoir un enfant dans les prochains 12 mois? OUI _____ NON ____

dans les prochains 24 mois? OUI _____ NON ____

Pour <u>chaque enfant</u>:

1 - Inscrire le nom, le sexe, la date de naissance

2 - Encercler "**TE**" si c'est ton enfant (tu es le parent biologique)
"**EC**" si l'enfant du conjoint (le conjoint actuel est le parent biologique)
"**EA**" si c'est un enfant adopté /"**FA**" en foyer d'accueil et qui vit chez toi
Si "TE" et "EC" sont vrais, encercler les deux.

3 - Indiquer si l'enfant vit avec toi, **OUI** ou **NON** ou **GP** (garde partagée)

4 - Inscrire l'année scolaire (si applicable) ainsi que si l'enfant fréquente une classe ou une école spéciale.

(Si tu as plus de quatre enfants, inscrire leurs informations sur une feuille séparée.)

1 NOM SEXE AN MO JR

_____ ☐ M ☐ F ____ ____ ____

L'enfant est: TE EC EA / FA Vit avec toi: OUI ☐ NON ☐ GP ☐

Année scolaire: _____ Classe spéciale: _____

2 NOM SEXE AN MO JR

_____ ☐ M ☐ F ____ ____ ____

L'enfant est: TE EC EA / FA Vit avec toi: OUI ☐ NON ☐ GP ☐

Année scolaire: _____ Classe spéciale: _____

3 NOM SEXE AN MO JR

_____ ☐ M ☐ F ____ ____ ____

L'enfant est: TE EC EA / FA Vit avec toi: OUI ☐ NON ☐ GP ☐

Année scolaire: _____ Classe spéciale: _____

4 NOM SEXE AN MO JR

_____ ☐ M ☐ F ____ ____ ____

L'enfant est: TE EC EA / FA Vit avec toi: OUI ☐ NON ☐ GP ☐

Année scolaire: _____ Classe spéciale: _____

5. **Ta scolarité** complétée (dernière année terminée):

En quoi? (spécialisation/général): _____

Étudies-tu présentement? OUI : Temps plein ☐ partiel ☐ NON ☐

Si oui, quel diplôme postules-tu _____ pour quand?___/___/___/

6. **As-tu un emploi** (rappel: renseignements gardés confidentiels)?

OUI ☐ NON ☐

Occupation: _____ As-tu déjà eu un emploi?

_____

Tes tâches: _____ Oui ☐ Non ☐
_____ ⇓
_____ En quoi?

Combien d'heures/sem.? _____ Pendant combien de temps?
____ an(s) ____ mois

Salaire de l'heure _____ $

Depuis quand es-tu à cet emploi? inscrire la date Quand as-tu arrêté de travailler:
date: ____/____/
AN MO

Au cours des 12 derniers mois, as-tu bénéficié de:

Oui ☐ Non ☐ l'Assurance chômage?

Oui ☐ Non ☐ Prestations d'aide sociale?

Oui ☐ Non ☐ la CSST? (préciser:_____)

7. **Informations sur le conjoint (renseignements gardés confidentiels):**

AN MO JR

a) Son nom:_____Date de naissance ____ ____

Son occupation:_____

Ses tâches:_____

Son salaire: _____ $/ heure Nombre d'heures _____ / semaine

AN MO

Il/Elle travaille là depuis: date ____ ____

b) Au cours des 12 derniers mois, a-t-il/elle bénéficié de:

Oui ☐ Non ☐ l'Assurance chômage?

Oui ☐ Non ☐ Prestations d'aide sociale?

Oui ☐ Non ☐ la CSST? (préciser:_____)

c) Sa scolarité complétée (dernière année terminée):
En quoi? (spécialisation/général):_____

Étudie-t-il (elle) présentement? OUI : Temps plein ☐ partiel ☐ NON ☐

Si oui, diplôme postulé?_____ pour quand? (date) ____/____/

8. **Informations sur le père\la mère de tes enfants (si n'habite pas avec toi)**

AN MO JR

a) Son nom:_____ Date de naissance ____ ____

Son occupation:_____

Ses tâches:_____

Son salaire: _____ $/ heure Nombre d'heures _____ / semaine

AN MO

Il/Elle travaille là depuis: date ____ ____

b) Au cours des 12 derniers mois, a-t-il/elle bénéficié de:

Oui ☐ Non ☐ l'Assurance chômage?

Oui ☐ Non ☐ Prestations d'aide sociale?

Oui ☐ Non ☐ la CSST? (préciser:_____)

c) Sa scolarité complétée (dernière année terminée):
En quoi? (spécialisation/général):_____

Étudie-t-il (elle) présentement? OUI : Temps plein ☐ partiel ☐ NON ☐

Si oui, diplôme postulé?_____ pour quand? (date) ____/____/

9. **Disponibilité pour l'entrevue**: un bloc de 2-3 heures

☐ Le matin ☐ L'après-midi
☐ Le soir ☐ La fin de semaine

10. **Je préfère aller à** _____ Guy et Maisonneuve (centre-ville)
_____ 7141 Sherbrooke ouest (N.D.G.)

S.V.P. Vérifier l'adresse et les numéros de téléphone.

_____ _____
No Rue app.

_____ _____ _____
Ville Code postal

Téléphones: Personnel: (_____) _____ - _____
Travail: (_____) _____ - _____
Parents: (_____) _____ - _____
Autre _____: (_____) _____ - _____

Ton numéro de téléphone est B quel nom dans l'annuaire téléphonique: Nom complet et lien avec toi:

_____

Adresse électronique: _____

Adresse des parents: _____

_____

_____

Appendix C

Social Skills Rating System- Child Self-report Questionnaire

IDNO: _____

SSRS

(Gresham & Elliot)

Voici plusieurs choses que les élèves de ton âge peuvent faire. Lis **TOUTES** les phrases et pense à ce que tu fais **TOI**. Ensuite, indique à quelle fréquence chaque comportement se produit.

Assure-toi de répondre à **TOUS** les numéros et souviens-toi qu'il n'y a pas de bonnes ou de mauvaises réponses.

		Jamais	Parfois	Très Souvent
1.	Je me fais des ami(e)s facilement.	0	1	2
2.	Je souris, j'envoie la main, ou je fais un signe de la tête aux gens.	0	1	2
3.	Je demande avant d'utiliser les affaires des autres.	0	1	2
4.	J'ignore les camarades qui font les clowns dans la classe.	0	1	2
5.	Je suis désolé(e) pour les autres quand de mauvaises choses leur arrivent.	0	1	2
6.	Je le dis aux autres lorsque je suis fâché(e) contre eux.	0	1	2
7.	Je peux être en désaccord avec les adultes sans chicaner ou argumenter.	0	1	2
8.	Je garde mon bureau propre et en ordre.	0	1	2
9.	Je participe aux activités scolaires comme les sports ou les clubs.	0	1	2
10.	Je fais mes devoirs à temps.	0	1	2
11.	Je dis mon nom aux autres sans qu'on me le demande.	0	1	2
12.	Je contrôle mon humeur quand les gens sont fâchés contre moi.	0	1	2
13.	Je conteste poliment les règles qui me semblent injustes.	0	1	2

		Jamais	Parfois	Très Souvent
14.	Je laisse savoir à mes ami(e)s que je les aime en leur disant ou en leur montrant.	0	1	2
15.	J'écoute les adultes quand ils me parlent.	0	1	2
16.	Je montre que j'aime les compliments que mes ami(e)s me font.	0	1	2
16.	J'écoute mes ami(e)s quand ils/elles parlent de leurs problèmes.	0	1	2
17.	J'évite de faire des choses avec les autres si c'est pour m'attirer des ennuis avec les adultes.	0	1	2
18.	Je termine calmement les disputes avec mes parents.	0	1	2
19.	Je dis de belles choses aux autres quand ils ont fait quelque chose de bien.	0	1	2
20.	J'écoute l'enseignant(e) quand il/elle donne son cours.	0	1	2
21.	Je termine mon travail en classe à temps.	0	1	2
22.	Je commence des conversations avec mes camarades de classe.	0	1	2
23.	Je le dis aux adultes quand ils ont fait quelque chose pour moi que j'aime.	0	1	2
24.	Je suis les directives du professeur.	0	1	2
25.	J'essaie de comprendre comment mes ami(e)s se sentent quand ils/elles sont fâché(e)s, agacé(e)s, ou tristes.	0	1	2
26.	Je demande à mes ami(e)s de m'aider avec mes problèmes.	0	1	2
27.	J'ignore les autres enfants quand ils m'agacent ou me crient des noms.	0	1	2
28.	J'accepte les gens qui sont différents.	0	1	2

		Jamais	Parfois	Très Souvent
29.	J'utilise mon temps libre d'une bonne façon.	0	1	2
30.	Je demande à mes camarades de classe pour me joindre à une activité ou à un jeu.	0	1	2
31.	J'utilise un ton poli lors des discussions en classe.	0	1	2
32.	Je demande de l'aide aux adultes lorsque d'autres enfants essaient de me frapper ou de me pousser.	0	1	2
34.	Je parle avec mes camarades de classe quand il y a un problème ou un conflit.	0	1	2

Merci pour ton aide!

Appendix D

Informed Consent Form

***L'INDIVIDU DANS SON MILIEU: Les parents et leurs enfants+**

Directeurs du projet: -Lisa A. Serbin, Ph.D.
-Dale M. Stack, Ph.D.

Numéro d=identification:

Formulaire de consentement

Je, soussigné(e), autorise les chercheurs du projet **L'individu dans son milieu+* de l'université Concordia à rencontrer mon enfant _____à l'école, en deux sessions, durant la période de classe. Je comprends que mon enfant remplira des tests de fonctionnement intellectuel et académique ainsi que des questionnaires sur son comportement et son tempérament. J'autorise également les chercheurs à recueillir des informations sur la vie scolaire de mon enfant de la part de son professeur et à avoir une copie du dernier bulletin de l'année en cours. Finalement, lors d'une troisième visite, je consens à rencontrer les chercheurs de l'université Concordia à la maison avec mon enfant afin de remplir des questionnaires additionnels portant sur notre vie familiale et de recueillir des échantillons de salive sur moi-même, lors de la rencontre, et sur mon enfant, lors de la rencontre et pendant deux jours de la semaine. J'accepte aussi d'être filmé(e) avec mon enfant lors d'une session incluant un jeu et des discussions portant sur des résolutions de problèmes.

Je comprends que toute l'information recueillie demeurera confidentielle et qu'elle ne servira qu'à des fins de recherche. Cependant, si après évaluation des examens votre enfant requérait une attention spéciale, les chercheurs de l'université Concordia s'engagent à faire le suivi de la rencontre afin de référer les services nécessaires.

Dans l'éventualité où j'aurais des questions concernant cette recherche, je pourrai m'adresser soit à Julie Aouad ou bien à Nadine Girouard au (514) 848-2424 extension 2254.

Nom: _____ Date:
EN LETTRES MOULÉES

Signature:

****

Nom de l'enseignant/e:

Année:

Nom du directeur/de la directrice:

Nom de l'école:

Numéro de téléphone: (_____)
code régional

Adresse: _____
rue

_____
ville code postal

Appendix E

Full Protocol

Home: script visit (SSHRC 2002-2005)

1)Health Questionnaire Interview

Cortisol questionnaire

CORTISOL 1

Mere: blue Enfant: red

1) Sors le de l'emballage en plastique et mets-le dans ta bouche (n'enlèves pas la mince couche de plastique qui le recouvre)
2) Mâche le pendant 30-45 secondes. Assure-toi qu'il est bien couvert de salive
3) Remplis le formulaire
4) Quand tu es sûr qu'il est remplie de salive, sors-le de ta bouche et remets le dans l'emballage en plastique en essayant de ne pas trop le toucher avec tes doigts.

2)Complétion du questionnaire sur les conflits : 5 à 7 minutes

- Voici une liste de thème à propos desquels les enfants et leurs parents sont souvent en désaccord ou en chicane. Nous voulons connaître jusqu'à quel point vous (mère et enfant) êtes en désaccord sur les sujets à la maison. Veuillez indiquer sur une échelle de 1 à 5 chacun des items de la liste où 1 = *Nous somme toujours d'accord* et 5 = *Nous sommes toujours en désaccord.*

3)Jenga : 4 minutes

- Voici un jeu que vous aimerez sûrement. Jenga est un jeu coopératif. Chacun votre tour, vous enlèverez un bloc de cette tour de 18 étages et vous placerez sur la tour, perpendiculaire aux blocs de l'étage juste en dessous. Terminer toujours un étage de trois blocs avant de commencer l'étage plus haut.
- Vous devez travailler en équipe. Le but est de bâtir une tour aussi haute que possible jusqu'à ce quelle tombe

4)Interaction task : 5-6 minutes

- Ce que nous allons faire maintenant est différent de ce que nous venons de faire
- _____ (nom de l'enfant) devra lire une courte histoire. Après l'histoire _____ (nom de l'enfant) devra répondre à quelques questions de discussion qui se trouvent sur les cartes qui suivent. Ensuite, vote but est de discuter de l'histoire et d'élaborer ensemble avec lui/elle le plus possible sur ses réponses. Soyez certains de bien répondre à chaque question avant de continuer à la prochaine.

CORTISOL 2 : après 6 minutes

5)Conflict resolution task : 6 minutes

- Choisir le sujet qui possède le plus élévé et ou les scores qui, chez la mère et l'enfant, sont très semblable.
- Je t'ai demandé tout à l'heure de remplir un questionnaire afin d'identifier certains thèmes qui peuvent causer des problèmes dans votre famille. Après avoir regardé chacune de vos réponses, j'ai choisi un sujet qui semble être l'objet d'une mésentente entre vous et qui ferait l'objet d'une discussion intéressante.
- Le sujet que vous avez identifié est _____. J'aimerais que vous preniez les 6 prochaines minutes pour discuter ensemble ce sujet. Il est important que vous participiez tous les deux.
- Je vais maintenant vous laisser seul est je vais revenir dans 6 minutes.
- Avez-vous des questions?
- Vous pouvez commencer.

CORTISOL 3 : après 6 minutes

6)Harter & PDI

CORTISOL 4 : après 10 minutes

7)SSRS, PEI, SSS-II, Service Questionnaire

CORTISOL 5 : après 10 minutes

HOME

Appendix F

Conflict Task Protocol

Conflict Resolution Task

1) Complete Parent-Child Conflict Questionnaires

Mother and child are separated in order to complete the parent-child conflict questionnaire (*Potential Parent-Child Conflict Questionnaire*).

"Voici une liste de themes a propos desquels les enfants et les parents sont souvent en disaccord. Nous sommes interesses a connaitre le degree auquel votre enfant et vous (ta mere et toi) etes en desaccord sur ces sujets a la maison. Veuillez évaluer chaque item sur une échelle variant de 0 a 5 ou = je ne suis pas en disaccord et 5 = je suis vraiment en desaccord."

2) Conflict Resolution Task (6 minutes)

L'assistant(e) de recherché doit avoir sélectionne le sujet de discussion a partir des questionnaires remplis par la mere et par l'enfant (*Potential Parent-Child Conflict Questionnaire*). Le sujet de discussion doit être choisi a partir du sujet que la mere et l'enfant auront évalue comme étant problématique sur l'échelle.

Choisi le sujet qui possède le score le plus élevé et ou les scores chez la mere et l'enfant sont très semblables.

"Nous vous avons demande tout a l'heure de remplir un questionnaire afin d'identifier certains themes qui peuvent causer des problèmes dans votre famille. Apres avoir regarde chacune de vos réponses, j'ai choisit un sujet qui semble être l'objet d'une mésentente entre vous et qui ferait l'objet d'une discussion intéressante. Le sujet que vous aveux identifie est _____. J'aimerais que vous preniez les six prochaines minutes pour discuter ensemble de ce sujet. Il est important que vous participiez tout(e) les deux. Je vais maintenant vous laisser seul(e) s et je vais revenir dans six minutes. Avez-vous des questions? Vous pouvez commencer."

Appendix G

Conflict Questionnaire (Mother)

Numéro D'identification: _____

Questionnaire sur les conflits

(parent)

Voici une liste d'éléments à propos desquels les enfants et les parents sont souvent en désaccord. Nous voulons savoir jusqu' à quel point votre enfant et vous êtes en désaccord sur ces sujets à la maison. Veuillez évaluer chaque item sur une échelle de 0 à 5 où 0 = "Je ne suis pas en désaccord" et 5 = "Je suis très en désaccord".

1. Tâches ménagères / aide à la maison.	1	2	3	4	5
2. Travail à l'école / devoirs, notes ou mauvaise conduite à l'école.	1	2	3	4	5
3. Inimité / être capable de garder certaines choses pour lui/elle-même.	1	2	3	4	5
4. Écouter / respecter les demandes et les conseils de ses parents.	1	2	3	4	5
5. L'heure à laquelle l'enfant doit être à la maison le soir.	1	2	3	4	5
6. Apparence physique / façon dont il/elle s'habille.	1	2	3	4	5
7. L'heure du coucher.	1	2	3	4	5
8. Passer du temps ensemble en temps que famille.	1	2	3	4	5
9. Les ami(e)s de mon enfant / les gens avec qui il/elle se tient.	1	2	3	4	5
10. S'entendre avec son/ses frère(s) et sa/ses soeur(s).	1	2	3	4	5
11. L'argent.	1	2	3	4	5
12. Parler au téléphone / regarder la télévision.	1	2	3	4	5
13. Garder sa chambre en ordre.	1	2	3	4	5
14. Prendre un bain / une douche.	1	2	3	4	5
15. _____	1	2	3	4	5
16. _____	1	2	3	4	5
17. _____	1	2	3	4	5
18. _____	1	2	3	4	5

Appendix H

Conflict Questionnaire (Child)

Numéro D'identification: _____

Questionnaire sur les conflits

(Enfant)

Voici une liste d'éléments à propos desquels les enfants et les parents sont souvent en désaccord. Nous voulons savoir jusqu' à quel point ta mère et toi êtes en désaccord sur ces sujets à la maison. Évalue chaque item sur une échelle de 0 à 5 où 0 = "Je ne suis pas en désaccord" et 5 = "Je suis très en désaccord".

1. Mes tâches ménagères / aide à la maison.	1	2	3	4	5
2. Mon travail à l'école / devoirs, notes ou mauvaise conduite à l'école.	1	2	3	4	5
3. Mon inimité / être capable de garder certaines choses pour moi.	1	2	3	4	5
4. Écouter / respecter les demandes et les conseils de mes parents.	1	2	3	4	5
5. L'heure à laquelle je dois être à la maison le soir.	1	2	3	4	5
6. Mon apparence physique / la façon dont je m'habille.	1	2	3	4	5
7. L'heure à laquelle je dois me coucher.	1	2	3	4	5
8. Passer du temps ensemble en temps que famille.	1	2	3	4	5
9. Mes ami(e)s / les gens avec qui je me tiens	1	2	3	4	5
10. M'entendre avec mon/mes frère(s) et ma/mes soeur(s).	1	2	3	4	5
11. L'argent.	1	2	3	4	5
12. Parler au téléphone / regarder la télévision.	1	2	3	4	5
13. Garder ma chambre en ordre.	1	2	3	4	5
14. Prendre un bain / une douche.	1	2	3	4	5
15. _____	1	2	3	4	5
16. _____	1	2	3	4	5
17. _____	1	2	3	4	5
18. _____	1	2	3	4	5

Appendix I

Emotion Behaviour Coding Scheme

EMOTION BEHAVIOUR CODING SCHEME (EBCS)

This coding system is designed to study emotion behavior in the context of a Conflict task involving the interaction between mothers and their 9-13 year old children. There are two parts to the coding scheme: Part 1 codes for the frequency and duration of emotion-related behaviours of mothers and their children based in part on the current literature (e.g., Hubbard, 2001; Perez & Riggio, 2003; Planalp, DeFrancisco, & Rutherford, 1996). Part 2 codes for frequency of behaviours not included in Part 1, and which were deemed relevant in order to more fully capture emotion behaviours in children (e.g., Coulson, 2004; Posner & Rothbart, 2000; Rydell, Berlin, & Bohen, 2003).

Part 1: Coding of Mother and Child Emotion Behaviours in the Conflict Task

Part 1 of this scheme focuses on the nonverbal emotional interaction between mother and child while engaging in the Conflict task. The mother and child have picked a topic to discuss that causes conflict between them. The interaction begins when the timer starts. The interaction ends when the timer sounds.

During the Conflict task, six categories of emotion behaviours can be coded: (i) Facial expressions, (ii) Eye movements, (iii) Touching other, (iv) Gestures, (v) Body language, and (vi) Vocalizations. The categories are coded separately for mothers and for the children.

It is recommended that the tapes be watched on a video monitor with high resolution (not a regular TV), and a time line (that indicates hours, minutes, seconds, and frames per second).

I. Mother and Child Emotion Behaviour Codes

Facial Expressions

This measure attempts to describe clearly a mother and/or child who demonstrate the following facial expressions during the Conflict task:

1. *Smile.* Facial expressions which may show amusement, satisfaction, affection, and which are characterized by a lateral and upward movement of the lips and cheeks. Lips are either together, parted, mouth is open, and/or teeth are showing. A slight smile is also to be coded as under this behavior.

2. *Frown/Look Upset.* Facial expressions which may show dissatisfaction, concentration, annoyance or exasperation, and which are characterized by brows

sharply down and together, wrinkled forehead, narrowed eyes, and/or lips that are either pressed together tightly and/or mouth is drawn downward.

3. *Look Sad/Distressed.* Facial expressions which may show unhappiness, misery, or sorrow and which are characterized by inner brows drawn together, squinted eyes and/or eyes cast downward, downward-turned mouth, and/or a pout. This facial expression may also include signs of anxiety, nervousness, or distress, and are characterized by eyelids raised (shows more white than usual, straight brows slightly drawn or eyebrows raised, and/or mouth corners tight or retracted.

4. *Neutral Mouth.* Facial expressions which show a lack of emotion (i.e., do not qualify as any of the abovementioned expressions), which are characterized by straight but relaxed mouth, relaxed eyebrows, and a smooth forehead.

5. *Unfelt Smile.* Facial expressions which may show dissatisfaction, annoyance, unaffection, exasperation, or anxiousness, and which are characterized by a lateral and upward movement of the lips and cheeks. Mouth may be open or closed, and teeth may or may not be showing.

6. *No Code.* Facial expressions that may not be coded due to:
   a. Either the mother or the child's mouth being difficult to view for 1 second or more. This may occur because the head is turned away from the camera, the mother or the child covers his/her mouth/face with hands or arms, or the mother or child leaves the area that the camera is filming in. If it is clear from mouth, eyes, and/or eyebrows that one is smiling, upset, sad, etc., then code as such. As soon as it is difficult to tell, code as No Code.
   b. Facial expressions that do not fit into any of the abovementioned behavior categories (e.g., surprise, disgust), and that are produced for 1 second or more.

Eye Movements

This measure attempts to describe clearly a mother and/or child who demonstrate the following eye movements during the Conflict task:

1. *Mutual Eye Contact.* When mother and child are looking into each other's eyes attentively at the same time for 1 second or more. If a member of the dyad's eyes are difficult to view, mutual eye contact can be coded if it appears that the members are making mutual eye contact, discerned by one member of the dyad instead of both.

2. *Looking at Other.* When the mother is looking at the child and the child is not looking at the mother, or when the child is looking at the mother and the mother is not looking at the child for a duration of 1 second or more.

3. *Gaze Aversion.* Avoiding looking at or making eye contact with the other person for 1 second or more. Includes closing eyes and/or covering face with own hands or arms. Does not include clearly shielding eyes to hide from camera – this is a No Code.

4. *Challenging Look.* When the mother/child have mutual eye contact, but one member of the dyad is staring at the other in a challenging and/or aggressive way; glaring. A Challenging Look must be coded together with either Mutual Eye Contact or Looking at Other. It is coded on the second it begins, even if it is less than 1 second.

5. *Eye Roll.* When the mother or child rolls his/her eyes in exasperation or annoyance with the other. An Eye Roll must be coded together with any other Eye Movements. It is coded on the second it begins, even if it is less than 1 second.

6. *Joint Attention.* Mother/child's eyes are fixed on the same object, person, or are looking off in the same direction for 1 second or more.

7. *Look at Camera.* Mother/child looks into the camera for 1 second or more.

8. *No Code.* Eye movement cannot be coded due to an unclear view of the person's eyes for 1 second or more, due to the head being turned away from the camera, being out of view of the camera, or being blocked by the other member of the dyad.

Touch Other

This measure attempts to describe clearly a mother/child who demonstrate the following touching behaviors during the Conflict task:

1. *Touching Other – Positive.* Includes one member of the dyad giving the other either a reassuring pat on the arm/shoulder, gentle face touch, pushing back/stroking hair, tickling, or resting hand on other. Touching must be affectionate, and so the recipient of the touch does not appear to feel distressed or hostile about the touch. Code at any duration.

2. *Touching Other – Negative.* Includes poking, grabbing other, or pulling on others arm/shoulder, face, or hair. Touching must seem unaffectionate, and the recipient may appear distressed or hostile about the touch. Code at any duration.

Note that Positive and Negative Touches can occur simultaneously. For example, one member of the dyad may be hitting the other with one hand while also stroking the arm with the other hand.

Gestures

This measure attempts to describe clearly a mother/child who demonstrate the following gestures during the Conflict task:

1. *Small Gesture.* Gestures using hands and/or arms. Hands must stay below the shoulders, or close together. Also includes shrugging of the shoulders. Code at any duration.

2. *Big Gesture.* Gestures using hands and/or arms. Hands must be at the level of the shoulders or above, arms may be extended, and may appears dramatic in nature. Code at any duration.

Head/Arm Movements

This measure attempts to describe clearly a mother/child who demonstrate the following body language during the Conflict task:

1. *Hangs Head.* Chin is down, tucked in, resting head on one or both arm/arms that is/are resting on the table, and/or head may be directly resting on the table. Eyes may be cast down (i.e., gaze aversion). Shoulders may be slumped forward. Individual may be looking at an item that s/he is playing with. Code at any duration.

2. *Head Movements.* Clearly nods, shakes, and/or moves head in a dramatic and intense fashion. If it is clear head movement as described above, code at any duration. Do not code if Head Movement is very slight and short in duration.

3. *Arms Crossed.* Has arms crossed across the chest or is hugging self. Do not code if arms are crossed but are semi-supported by the table *and* participant emoting this behavior makes it appear that this is a relaxed and comfortable pose. Otherwise, code at any duration.

Vocalizations

This measure attempts to describe clearly a mother/child who demonstrate the following vocalizations during the Conflict task:

1. *Quiet Positive.* Includes making "oooo-ing" sounds under his/her breath, or other unintelligible sounds combined with smiling or warm neutral interaction. Code a Quiet Positive if vocalization is at the participants normal talking volume or quieter. Code at any duration.

2. *Loud Positive.* Includes squealing, loud "ooo-ing" sounds, or other unintelligible sounds combined with smiling or warm neutral interaction. Code a Loud Positive if vocalization is louder than the talking voice the participant is normally using. Code at any duration.

3. *Quiet Negative.* Quiet groans, moans, sighs, gasps, audible exhalations, mocking sounds, scoffing, or other unintelligible sounds combined with frowning/looking upset, looking sad/distressed, or cold neutral interaction. Code if vocalization is at the participants normal talking volume or quieter. Code at any duration.

4. *Loud Negative.* Groans, moans, loud sighs with audible, groan-like beginning, mocking noises, or other unintelligible sounds combined with frowning/looking upset, looking sad/distressed, or cold neutral interaction. Code if vocalization is louder than the talking voice the participant is normally using. Code at any duration.

5. *Laugh.* An open or closed mouth snicker, giggle, chuckle, or laugh. Code at any duration.

6. *Crying.* Tearing up, tears running down face, and/or sobbing. Code at any duration.

7. *Yelling.* Loud talking or shouting at other. Code at any duration.

II. Durations to Code

Each interaction is coded in second-by-second intervals.

The following nonverbal emotionality behaviors in the interaction may only be coded if the behavior occurs for 1 second or more:

- All facial expression behaviors;
- All eye movements, except Eye Roll and Challenging Look (see above description of each behavior)

The following nonverbal emotionality behaviors in the interactions may be coded anytime that they occur (i.e., no 1-second duration limitation):

- Eye Rolls;
- Challenging Looks;
- All touching behaviors;
- All gestures;
- All head/arm movements;
- All vocalizations;

III. Coding Instructions

Each coding sheet includes numbers from one to 10, blocked into 10-second intervals. Each number constitutes one second. Anytime a behavior occurs, according to the abovementioned duration rules, circle the number that corresponds with the second. This will vary from interaction to interaction, as the recording time changes for each interaction.

The seconds are entered in the time slot allotted. Each separate coding sheet equals 1 minute of an interaction. Circle the second that corresponds with the time. When a behavior occurs across a 10-second interval, the first second is circled again, even if the behavior is being carried over from the previous interval. The cessation of a behavior is indicated by putting a diagonal slash through the second that it ends.

When a behavior occurs that is less than one second but should be coded (e.g., gestures), indicate this with by circling and putting a diagonal line through the same second that it occurred.

Part 2: Coding of Additional Child Emotion Behaviours in the Conflict Task

This scheme coded for additional child emotion behaviours not included in Part 1. In addition, codes for talking were included for both mothers and children. The mother and child have picked a topic to discuss that causes conflict between them. The interaction begins when the timer starts. Only behaviors related to emotion regulation are coded throughout the discussion of the topic. The interaction ends when the timer sounds.

During the Conflict task, five additional categories of children's emotion behaviors can be coded: (i) Posture, (ii) Leaning behavior, (iii) Movements, (iv) Self-touch, (v) Object Use, and (vi) Voice. The first five categories of behaviors are coded only for the children; the last category (Voice) is coded for both mother and child.

It is recommended that the tapes be watched on a video monitor with high resolution (not a regular TV), and a time line (that indicates hours, minutes, seconds, and frames per second).

I. Child Emotion Behaviour Codes

Posture
This measure attempts to describe clearly a child who demonstrates the following posture during both the Conflict task:

1. *Not Tense/Relaxed.* Child looks relaxed, shoulders not hunched up, slight curve in spine, may be leaning on hands or leaning back in the chair; looks comfortable and at ease with the interaction.

2. *Tense/Not Relaxed.* Child looks tense, shoulders may be hunched; looks uncomfortable and ill-at ease with the interaction.

3. *Slumped.* Shoulders hunched forward, back rounded, head closer to table, OR is slid down in chair, making his/her head appear closer to the top of the table. Obviously not sitting straight.

4. *Stiff/Rigid.* Sitting very straight, no curve in spine, not touching the back of the chair. Does not Shift/Wiggle much, if at all.

Leaning Behaviour
This measure attempts to describe clearly child who demonstrates the leaning behavior during the Conflict task:

1. *Lean In.* Body is inclined toward the mother; appears that the child is trying to lessen the distance between him/herself and the mother. To assess whether child is leaning in, note the back of the chair – if the back of the chair is showing more on the side that is furthest away from the mother, code for Leaning In.

2. *Lean Away.* Body is inclined away from the mother; appears that the child is trying to create distance between him/herself and the mother. To assess whether child is leaning away, note the back of the chair – if the back of the chair is showing more on the side that is nearest to the mother, code for Leaning Away.

Hand/Body Movements

This measure attempts to describe clearly a child who demonstrates the following movements during the Conflict task:

1. *Shifting/Wiggling.* Movement that depict either a child who shifts his/her body positioning, arms, legs, and/or torso frequently during a 5-second interval, and/or appears unable to sit still. Examples include rocking or jiggling while sitting in the chair, or changing body position 2 times or more during a 5-second interval (e.g., crossed arms to uncrossed arms to leaning on hand to sitting back, etc.).

2. *Slam Body Part.* The child brings his/her hand or arm down fairly hard on the table, objects on the table, or the mother.

3. *Fidgety Hands.* Any behavior where the child is using either one or both hands in a fidgety manner, without the use of an object. This includes drumming fingers or hands on the table, running hands/fingers over the chair(s), playing with his/her own hands or his/her mother's hands, and/or wringing hands.

4. *Leaves.* Child leaves the interaction.

5. *Pacing.* Child has not left the interaction, but has left his/her chair and is moving around during the interaction.

6. *Gets out of Chair.* The child has his/her bum or knees off of the chair. This includes standing up, either partially or fully out of the chair, and/or if child stands up on his/her knees while still on their chair.

Self-touch

This measure attempts to describe clearly a child who demonstrates the following self-touching behaviors during the Conflict task:

1. *Self-touch: Face.* Child itches at face, plays with hair, and/or covers pieces of face or entire face with hands or arms. This behavior does not include when child is leaning on his/her elbows on the table with hands on his/her face.

2. *Self-touch: Body.* Child clutches own body, hugs self, and our strokes/pulls at own arm(s), leg(s), or neck.

3. *Self-touch: Clothes.* Child tugs at own clothes or holds on to/clutches own clothes.

Object Use

This measure attempts to describe clearly a child who uses objects during the Conflict task:

1. *Play with Items.* Child plays with nearby objects and/or objects on his/her own person with his/her hand(s). This could include a pencil, paper, blocks, necklace, bracelet, etc. The object must be moving in the child's hand(s) to receive this code.

2. *Clutch Items.* Child holds on to, grips, or has in hand an object as described above, but is not moving the object around in his/her hand(s).

3. *Grab Away from Mother.* Child grabs or takes away an object that the mother is holding onto, getting, or looking at.

Voice

This measure attempts to describe clearly a mother and child who demonstrate talking behavior during both the Conflict task:

1. *Talking: Child.* Coded anytime the child speaks to his/her mother during a 5-second interval. Includes a normal volume of speech, quiet talking, and whispering.

2. *Talking: Mother.* Coded anytime the mother speaks to her child during a 5-second interval. Includes a normal volume of speech, quiet talking, and whispering.

II. Durations to Code

Each interaction is coded in 5-second intervals. Code every behavior that occurs within that interval. The Posture category is the only behavior that is coded for each interval.

III. Coding Instructions

Each coding sheet includes a "Yes" option for each behavior. If a behavior occurs anytime during a 5-second interval, the "Yes" is circled. More than one behavior in each category can be circled within the same interval.

If a behavior occurs within the last 20^{th} of a second of the last second of a 5-second interval, code this behavior as part of the following interval. For example, if a child begins talking at 0:04:59:22 (which would be the tail end of interval 0-4), circle the "Yes" option for *Talking: Child* as if it began during the 5^{th} second (which would be the beginning of interval 5-9).

Appendix J

Means, Standard Deviations, and Ranges of Individual Behaviours (Child and Mother)

Table J - 1

Frequency of Child Behaviours Part 1: Means, Standard Deviations, and Ranges (N = 49)

CHILD BEHAVIOURS - PART 1	Mean	Standard Deviation	Range
Facial Expressions			
Smile	18.39	13.18	0-46
Frown/Look upset	15.39	12.41	0-44
Look Sad/Distressed	14.67	12.47	0-47
Neutral Face	35.14	16.86	1-66
Unfelt Smile	10.18	9.50	0-36
No Code - Face	12.82	18.91	0-75
Eye Movements			
Eye Contact	49.59	20.13	11-88
Look at Mother	16.61	13.00	0-47
Gaze Aversion	53.47	19.38	10-85
Joint Attention	7.61	9.62	0-36
Look at Camera	1.65	2.57	0-13
Challenging Looks	1.96	4.27	0-27
Eye Roll	0.35	0.81	0-3
No Code - Eyes	3.92	9.04	0-46
Touch Mother			
Positive	2.02	7.01	0-42
Negative	0.37	1.78	0-12
Gestures			
Small Gestures	6.92	6.33	0-25
Big Gestures	3.27	4.47	0-16
Head/Arm Movements			
Hangs Head	5.55	8.23	0-45
Head Movements	10.65	8.21	0-35
Arms Crossed	1.55	7.12	0-49
Vocalizations			
Quiet Positive	0.39	0.67	0-2
Loud Positive	0.04	0.20	0-1
Quiet Negative	0.53	0.87	0-4
Loud Negative	0.22	0.69	0-4
Laugh	7.43	6.31	0-22
Yell	1.08	3.79	0-24

Table J - 2

Frequency of Child Behaviours Part 2: Means, Standard Deviations, and Ranges (N = 49)

CHILD BEHAVIOURS - PART 2	Mean	Standard Deviation	Range
Posture			
Relaxed	16.94	18.78	0-61
Tense	34.33	23.49	0-72
Slumped	18.33	19.28	0-68
Stiff/Rigid	1.92	5.65	0-36
Leaning Behaviour			
Lean In	3.16	4.78	0-18
Lean Away	4.33	8.55	0-49
Hand/Body Movements			
Shifting/Wiggling	12.04	10.46	0-40
Slam Hand	1.06	1.81	0-7
Fidgety Hands	9.55	11.76	0-47
Leaves Chair	0.29	0.74	0-4
Self-Touch			
Face	11.51	10.07	0-34
Body	1.86	4.36	0-24
Clothes	1.43	2.61	0-11
Object Use			
Play with Items	20.57	22.01	0-66
Clutch Items	8.27	12.76	0-43
Voice			
Child Talking	41.73	12.95	19-68

Table J - 3

Frequency of Mother Behaviours: Means, Standard Deviations, and Ranges (N = 49)

MOTHER BEHAVIOURS	Mean	Standard Deviation	Range
Facial Expressions			
Smile	15.39	13.70	0-55
Frown/Look upset	19.35	17.89	0-59
Look Sad/Distressed	1.98	5.18	0-27
Neutral Face	48.06	17.84	11-72
Unfelt Smile	1.84	3.31	0-14
No Code – Face	3.41	8.14	0-48
Eye Movements			
Eye Contact	47.94	20.97	0-89
Look at Mother	47.41	19.63	9-93
Gaze Aversion	33.37	17.01	8-71
Joint Attention	7.45	9.65	0-37
Look at Camera	0.16	0.43	0-2
Challenging Looks	2.00	4.12	0-16
Eye Roll	0.24	0.52	0-2
No Code – Eyes	0.96	1.59	0-8
Touch Child			
Positive	1.16	2.21	0-10
Negative	0.43	1.04	0-5
Gestures			
Small Gestures	19.22	14.99	0-62
Big Gestures	2.41	2.99	0-11
Head/Arm Movements			
Hangs Head	0.80	4.58	0-32
Head Movements	29.98	17.91	0-74
Arms Crossed	2.53	8.44	0-46
Vocalizations			
Quiet Positive	0.12	0.39	0-2
Loud Positive	0.16	0.47	0-2
Quiet Negative	0.39	0.64	0-2
Loud Negative	0.18	0.44	0-2
Laugh	4.22	4.76	0-18
Yell	0.53	3.01	0-21
Voice			
Mother Talking	58.31	9.64	33-72

Appendix K

Intercorrelations among All Emotion Behaviours (Child and Mother)

Table K - 1

Intercorrelations among Child Facial Expressions and All Child Emotion Behaviours

	CHILD FACIAL EXPRESSIONS					
	Smiling	Frowning/ Look Upset	Look Sad/ Distressed	Neutral Face	Unfelt Smile	No Code - Face
Facial Expressions						
Smiling	--					
Frowning/Look Upset	-.30*	--				
Look Sad/Distressed	-.18	.18	--			
Neutral Face	.11	.18	-.35*	--		
Unfelt Smile	.43**	.14	.17	-.13	--	
No Code – Face	-.33*	-.38**	-.16	-.48**	-.17	--
Eye Movements						
Eye Contact	.39**	.04	.29*	.04	.46**	-.20
Look at Mother	.18	-.17	-.12	.07	.09	.17
Gaze Aversion	-.08	.46**	.16	.32*	.25^{t}	-.27^{t}
Joint Attention	.03	.02	-.16	.25^{t}	.04	-.03
Look at Camera	.22	-.06	.04	.30*	.04	-.16
Challenging Look	-.10	.55**	.14	.03	.07	-.21
Eye Roll	.17	.27^{t}	.11	.13	.23	-.15
No Code – Eyes	-.35*	-.34*	-.05	-.37**	-.33*	.71**
Touch Mother						
Positive	.13	.01	-.12	-.08	.02	.02
Negative	.19	-.01	-.11	-.11	.03	-.09

$^{t}p < 0.10$, $*p < 0.05$, $**p < 0.01$

Table K - 1

Intercorrelations among Child Facial Expressions and All Child Emotion Behaviours (continued)

	CHILD FACIAL EXPRESSIONS					
	Smiling	Frowning/ Look Upset	Look Sad/ Distressed	Neutral Face	Unfelt Smile	No Code - Face
Gestures						
Small Gestures	.01	.22	.21	.06	.15	.01
Big Gestures	.28^{t}	.03	.02	.04	.05	-.14
Head/Arm Movements						
Hangs Head	-.07	-.03	.20	-.10	.15	.18
Head Shakes	.17	.34*	-.08	.22	.23	-.11
Arms Crossed	-.20	.08	-.15	.29*	-.15	-.10
Vocalizations						
Quiet Positive	.25^{t}	-.00	.14	.05	.25^{t}	-.13
Loud Positive	-.01	-.16	-.12	-.28^{t}	-.05	.25^{t}
Quiet Negative	-.14	.16	.08	.00	-.06	.09
Loud Negative	.28^{t}	-.02	-.16	-.02	.15	-.11
Laugh	.69**	-.36*	-.10	-.03	.33*	-.10
Yell	-.02	-.07	-.17	-.22	-.09	.37**
Postures						
Relaxed	.35*	-.25	-.59**	.19	-.11	.06
Tense	-.11	.32*	.55**	-.01	.18	-.29*
Slumped	-.11	-.14	.09	-.20	.08	.37**
Stiff/Rigid	-.28^{t}	.23	.00	.21	-.08	-.05

$^{t}p < 0.10$, $*p < 0.05$, $**p < 0.01$

Table K - 1

Intercorrelations among Child Facial Expressions and All Child Emotion Behaviours (continued)

	CHILD FACIAL EXPRESSIONS					
	Smiling	Frowning/ Look Upset	Look Sad/ Distressed	Neutral Face	Unfelt Smile	No Code - Face
<u>Leaning Behaviour</u>						
Lean In	.06	.24[t]	.01	.19	.17	-.06
Lean Away	-.14	-.04	-.11	.20	-.10	.04
<u>Hand/Body Movements</u>						
Shifting/Wiggling	.07	.08	-.00	-.01	.12	.14
Slam Hand	-.02	.08	-.10	-.15	-.05	.19
Fidgety Hands	-.04	-.03	-.03	.06	-.06	.10
Leaves Chair	.02	-.15	.03	-.19	.24[t]	.18
<u>Self-Touch</u>						
Face	.10	-.11	-.09	.18	.07	.17
Body	-.15	-.04	.00	.17	-.11	-.07
Clothes	.03	.03	.12	.13	-.00	-.09
<u>Object Use</u>						
Play with Items	-.09	.18	.12	-.02	-.01	-.11
Clutch Items	.02	.02	.45**	.03	.10	-.19
<u>Voice</u>						
Child Talking	.28[t]	.23	.10	.18	.13	-.13

[t]$p < 0.10$, *$p < 0.05$, **$p < 0.01$

Table K - 2

Intercorrelations among Maternal Facial Expressions and All Maternal Emotion Behaviours

	MATERNAL FACIAL EXPRESSIONS					
	Smiling	Frowning/ Look Upset	Look Sad/ Distressed	Neutral Face	Unfelt Smile	No Code - Face
Facial Expressions						
Smiling	--					
Frowning/Look Upset	-.37**	--				
Look Sad/Distressed	-.08	.11	--			
Neutral Face	-.15	-.41**	-.28*	--		
Unfelt Smile	.02	.14	-.09	.19	--	
No Code – Face	-.04	-.15	-.04	-.26^{t}	.05	--
Eye Movements						
Eye Contact	.08	.37**	-.08	-.02	.17	-.13
Look at Child	-.16	.09	.23	.21	-.22	-.15
Gaze Aversion	-.06	.01	-.02	.35*	.22	-.19
Joint Attention	.13	-.14	-.04	.23	.24^{t}	.27^{t}
Look at Camera	.27	-.19	-.13	.11	.09	.01
Challenging Look	-.24	.49**	-.03	-.02	.23	-.14
Eye Roll	-.12	.07	-.11	.18	-.13	-.16
No Code – Eyes	.02	-.19	-.06	.22	.16	.16
Touch Child						
Positive	.25	.03	-.08	-.12	-.12	.02
Negative	.16	.04	-.16	-.15	-.08	.07

$^{t}p < 0.10$, $*p < 0.05$, $**p < 0.01$

Table K - 2

Intercorrelations among Maternal Facial Expressions and All Maternal Emotion Behaviours (continued)

	MATERNAL FACIAL EXPRESSIONS					
	Smiling	Frowning/ Look Upset	Look Sad/ Distressed	Neutral Face	Unfelt Smile	No Code - Face
Gestures						
Small Gestures	-.19	.31*	.31*	-.28^{t}	.08	-.11
Big Gestures	.04	.26^{t}	.11	-.26^{t}	.12	-.18
Head/Arm Movements						
Hangs Head	-.04	-.04	-.06	.16	.10	-.03
Head Shakes	-.23	.46**	.04	.07	.07	-.05
Arms Crossed	.14	-.09	-.09	.04	.08	.31*
Vocalizations						
Quiet Positive	.00	-.07	-.02	.16	.16	-.01
Loud Positive	.28	-.08	.15	.12	.22	.09
Quiet Negative	-.08	.20	-.02	-.17	.19	.49**
Loud Negative	.02	-.11	.01	.08	.22	.02
Laugh	.77**	-.34*	-.06	-.23	-.06	.08
Yell	-.12	.33*	-.07	-.20	.10	-.08
Voice						
Mother Talking	-.20	.49**	.28^{t}	.05	-.01	-.34*

$^{t}p < 0.10$, $*p < 0.05$, $**p < 0.01$

Table K - 3

Intercorrelations among Child Eye Movements and Remaining Child Emotion Behaviours

	CHILD EYE MOVEMENTS							
	Eye Contact	Look at Mother	Gaze Aversion	Joint Attention	Look at Camera	Challenging Looks	Eye Roll	No Code - Eyes
Eye Movements								
Eye Contact	--							
Look at Mother	.36*	--						
Gaze Aversion	-.16	-.36*	--					
Joint Attention	-.21	.09	-.11	--				
Look at Camera	.10	.06	.08	.03	--			
Challenging Looks	.22	-.08	.01	-.22	-.02	--		
Eye Roll	.20	.02	.26^{t}	.03	.26^{t}	.05	--	
No Code – Eyes	-.31*	-.08	-.35*	.05	-.14	-.16	-.16	--
Touch Mother								
Positive	.13	-.04	-.19	-.08	-.11	.12	-.02	.02
Negative	.05	-.16	-.28	-.04	-.00	.27^{t}	.04	-.09
Gestures								
Small Gestures	.42**	.28*	-.02	.08	.33*	.24^{t}	.14	-.15
Big Gestures	.40**	.07	-.25^{t}	-.10	.29*	.34*	.27^{t}	-.18
Head/Arm Movements								
Hangs Head	-.13	-.21	.21	-.12	-.04	-.14	-.06	.22
Head Movements	.43**	.11	.11	.10	.11	.16	.36*	-.13
Arms Crossed	-.29*	-.06	.15	-.09	-.03	.01	-.03	-.05

$^{t}p < 0.10$, $*p < 0.05$, $**p < 0.01$

Table K - 3

Intercorrelations among Child Eye Movements and Remaining Child Emotion Behaviours (continued)

	CHILD EYE MOVEMENTS							
	Eye Contact	Look at Mother	Gaze Aversion	Joint Attention	Look at Camera	Challenging Looks	Eye Roll	No Code - Eyes
Vocalizations								
Quiet Positive	.14	.28^{t}	.13	.04	.50**	-.05	.05	-.15
Loud Positive	.03	.12	-.44**	-.04	-.09	.05	-.09	.13
Quiet Negative	-.05	-.11	.12	.07	-.10	-.01	.12	-.02
Loud Negative	.10	.09	-.35*	.13	.22	.07	.20	-.11
Laugh	.32*	-.03	-.13	-.07	-.03	-.07	.07	-.20
Yell	.14	.16	-.19	.00	-.03	.12	.03	-.03
Postures								
Relaxed	.13	.20	-.25^{t}	.01	.14	-.07	.11	-.12
Tense	.21	-.10	.39**	-.23	-.11	.22	.08	-.26^{t}
Slumped	-.23	.06	-.09	.24^{t}	.06	-.20	-.09	.50**
Stiff/Rigid	.04	-.04	.00	.32*	-.11	.10	-.12	-.07
Leaning Behaviour								
Lean In	.06	-.02	.01	.43**	.28^{t}	.34*	.10	-.10
Lean Away	-.35*	-.09	.18	.11	.03	-.09	-.04	.11
Hand/Body Movements								
Shifting/Wiggling	.13	.05	-.08	.17	.06	.08	.04	.17
Slam Hand	.06	-.04	-.35*	.05	.09	.51**	.17	.15
Fidgety Hands	.09	.04	-.05	-.08	-.06	-.02	-.01	.28^{t}
Leaves Chair	.09	.18	-.07	.10	-.09	-.08	-.17	-.03

$^{t}p < 0.10$, $*p < 0.05$, $**p < 0.01$

Table K - 3

Intercorrelations among Child Eye Movements and Remaining Child Emotion Behaviours (continued)

	CHILD EYE MOVEMENTS							
	Eye Contact	Look at Mother	Gaze Aversion	Joint Attention	Look at Camera	Challenging Looks	Eye Roll	No Code - Eyes
Self-Touch								
Face	.17	.41**	-.01	.22	.27^{t}	-.14	.02	.00
Body	-.32*	-.04	.23	-.01	.09	-.08	-.15	-.08
Clothes	-.06	.06	.28^{t}	-.01	.36*	-.05	.28^{t}	-.11
Object Use								
Play with Items	-.15	-.33*	.29*	-.29*	-.00	.22	.24^{t}	-.17
Clutch Items	.22	-.14	.18	-.16	.14	.21	.40**	-.11
Voice								
Child Talking	.41**	.23	.11	.04	.39**	.22	.32*	-.33*

$^{t}p < 0.10$, $*p < 0.05$, $**p < 0.01$

Table K - 4

Intercorrelations among Child Touching Mother, Gestures, Head/Arm Movements and Remaining Child Emotion Behaviours

	TOUCH MOTHER		CHILD GESTURES		CHILD HEAD/ARM MOVEMENTS		
	Positive Touch	Negative Touch	Small Gestures	Big Gestures	Hangs Head	Head Movements	Arms Crossed
Touch Mother							
Positive	--						
Negative	.51**	--					
Gestures							
Small Gestures	-.12	.05	--				
Big Gestures	.12	.44**	.47**	--			
Head/Arm Movements							
Hangs Head	-.05	-.10	-.09	-.18	--		
Head Movements	.18	.20	.40**	.49**	-.12	--	
Arms Crossed	-.02	.05	-.12	-.04	.12	.03	--
Vocalizations							
Quiet Positive	-.16	-.12	.34*	.05	-.09	.09	-.10
Loud Positive	.48**	.66**	-.03	.17	-.14	-.00	.01
Quiet Negative	-.17	-.13	.11	-.11	-.01	.07	-.11
Loud Negative	.33*	.80**	.11	.44**	-.05	.26^{t}	.06
Laugh	.24^{t}	.29*	.07	.28*	.19	.10	-.17
Yell	.14	.39**	.45**	.44**	-.11	.27^{t}	-.01

$^{t}p < 0.10$, $^{*}p < 0.05$, $^{**}p < 0.01$

Table K - 4

Intercorrelations among Child Touching Mother, Gestures, Head/Arm Movements and Remaining Child Emotion Behaviours (continued)

	TOUCH MOTHER		CHILD GESTURES		CHILD HEAD/ARM MOVEMENTS		
	Positive Touch	Negative Touch	Small Gestures	Big Gestures	Hangs Head	Head Movements	Arms Crossed
Postures							
Relaxed	.10	.26^{t}	.12	.32*	-.33*	.19	-.12
Tense	-.08	-.17	-.04	-.11	-.05	.03	.17
Slumped	-.09	-.18	.07	-.15	.58**	-.07	-.06
Stiff/Rigid	-.07	-.04	.10	.00	-.14	.05	-.06
Leaning Behaviour							
Lean In	-.02	.18	.50**	.51**	-.03	.37**	-.02
Lean Away	-.09	-.04	.04	-.09	.15	.06	.75**
Hand/Body Movements							
Shifting/Wiggling	.02	.09	.03	.21	.10	.10	-.12
Slam Hand	.28*	.60**	.29*	.60**	-.11	.20	-.00
Fidgety Hands	.53**	.12	-.01	.21	.06	.26^{t}	-.03
Leaves Chair	-.08	-.08	.13	-.04	.07	-.03	-.09
Self-Touch							
Face	-.15	-.08	.61**	.28^{t}	-.03	.30*	-.09
Body	-.12	-.08	-.05	-.02	-.01	.03	.73**
Clothes	.00	.14	.30*	.34*	-.11	.17	-.03

$^{t}p < 0.10$, $*p < 0.05$, $**p < 0.01$

Table K - 4

Intercorrelations among Child Touching Mother, Gestures, Head/Arm Movements and Remaining Child Emotion Behaviours (continued)

	TOUCH MOTHER		CHILD GESTURES		CHILD HEAD/ARM MOVEMENTS		
	Positive Touch	Negative Touch	Small Gestures	Big Gestures	Hangs Head	Head Movements	Arms Crossed
Object Use							
Play with Items	-.16	-.06	-.13	-.07	.10	-.16	-.15
Clutch Items	-.10	.00	.23	.11	.01	-.13	-.10
Voice							
Child Talking	-.09	.04	.65**	.44**	-.17	.36*	-.21

$^{t}p < 0.10$, $^{*}p < 0.05$, $^{**}p < 0.01$

Table K - 5

Intercorrelations among Child Vocalizations and Remaining Child Emotion Behaviours

	CHILD VOCALIZATIONS					
	Quiet Positive	Loud Positive	Quiet Negative	Loud Negative	Laugh	Yell
Vocalizations						
Quiet Positive	--					
Loud Positive	-.12	--				
Quiet Negative	.03	-.13	--			
Loud Negative	-.01	.54**	-.03	--		
Laugh	-.06	.20	-.01	.20	--	
Yell	-.13	.22	-.00	.31*	.06	--
Postures						
Relaxed	-.11	.12	-.22	.26^{t}	.26^{t}	.41**
Tense	.20	-.28^{t}	.19	-.25^{t}	-.20	-.20
Slumped	-.04	.14	-.16	-.07	.09	-.15
Stiff/Rigid	-.10	-.02	.48**	.09	-.21	-.06
Leaning Behaviour						
Lean In	-.06	-.01	-.19	.26^{t}	.08	.31*
Lean Away	-.03	-.07	-.09	-.01	-.05	.07
Hand/Body Movements						
Shifting/Wiggling	-.12	.22	-.15	.09	.16	.02
Slam Hand	-.26^{t}	.34*	-.09	.51**	.09	.60**
Fidgety Hands	-.14	.10	-.18	.16	.04	-.05
Leaves Chair	.28^{t}	-.08	-.08	-.09	.07	.25^{t}

$^{t}p < 0.10$, $*p < 0.05$, $**p < 0.01$

Table K - 5

Intercorrelations among Child Vocalizations and Remaining Child Emotion Behaviours (continued)

	CHILD VOCALIZATIONS					
	Quiet Positive	Loud Positive	Quiet Negative	Loud Negative	Laugh	Yell
Self-Touch						
Face	.08	-.08	.05	.16	.05	.26^{t}
Body	.29*	-.09	-.09	-.14	-.24^{t}	-.07
Clothes	.40**	-.03	-.10	.13	-.15	.15
Object Use						
Play with Items	-.01	-.16	.27^{t}	-.19	-.01	-.09
Clutch Items	.15	-.14	.09	-.11	-.00	-.02
Voice						
Child Talking	.25^{t}	.00	.01	.08	.23	.35*

$^{t}p < 0.10$, $*p < 0.05$, $**p < 0.01$

Table K - 6

Intercorrelations among Child Posture, Leaning Behaviour, and Remaining Child Emotion Behaviours

	POSTURE				LEANING BEHAVIOUR	
	Relaxed	Tense	Slumped	Stiff/Rigid	Lean In	Lean Away
Postures						
Relaxed	--					
Tense	-.63**	--				
Slumped	-.26^{t}	-.44**	--			
Stiff/Rigid	-.13	-.00	-.15	--		
Leaning Behaviour						
Lean In	.14	-.23	.27^{t}	.05	--	
Lean Away	-.07	-.05	.23	-.13	.13	--
Hand/Body Movements						
Shifting/Wiggling	-.00	-.23	.40**	.09	.34*	-.09
Slam Hand	.29*	-.26^{t}	.04	-.07	.54**	.09
Fidgety Hands	.01	-.03	.06	.10	.13	-.00
Leaves Chair	.01	.07	.01	-.05	.11	-.03
Self-Touch						
Face	.24^{t}	-.25^{t}	.15	.17	.41**	.08
Body	-.28^{t}	.35*	-.10	-.10	-.02	.56**
Clothes	.07	.11	-.10	-.11	.19	-.04
Object Use						
Plays with Items	.03	.09	-.17	-.12	-.21	-.14
Clutch Items	-.18	.29*	-.12	-.15	-.08	-.05
Voice						
Child Talking	.36*	-.02	-.12	-.05	.46**	-.15

$^{t}p < 0.10$, $*p < 0.05$, $**p < 0.01$

Table K - 7

Intercorrelations among Child Body Movements, Self-touch, and Remaining Child Emotion Behaviours

	BODY MOVEMENTS				SELF-TOUCH		
	Shifting/ Wiggling	Slam Hand	Fidgety Hands	Leaves Chair	Face	Body	Clothes
Hand/Body Movements							
Shifting/Wiggling	--						
Slam Hand	.21	--					
Fidgety Hands	.03	.11	--				
Leaves Chair	.04	-.01	.17	--			
Self-Touch							
Face	-.06	.06	.28^{t}	-.00	--		
Body	-.16	-.19	-.08	.07	-.03	--	
Clothes	.10	.05	.21	.03	.28^{t}	.31*	--
Object Use							
Play with Items	-.30*	-.01	-.35*	-.25^{t}	-.38**	-.20	.04
Clutch Items	-.19	.06	-.19	-.17	-.12	-.10	.24^{t}
Voice							
Child Talking	.12	.21	-.10	.05	.41**	-.18	.26^{t}

$^{t}p < 0.10$, $*p < 0.05$, $**p < 0.01$

Table K - 8

Intercorrelations between Child Object Use and Voice

	OBJECT USE		VOICE
	Play with Items	Clutch Items	Child Talking
Object Use			
Play with Items	--		
Clutch Items	.50**	--	
Voice			
Child Talking	-.02	.05	--

†$p < 0.10$, *$p < 0.05$, **$p < 0.01$

Appendix L

Non-significant Regression Analyses

Table L - I

Maternal Childhood Levels of Aggression and/or Social Withdrawal and Children's Negative Cues to Emotion (N=49)

Variables	Beta	Sr^2	T	R^2_{ch}	F_{ch}
Step 1				0.05	1.31
Childhood Aggression	-0.10	0.01	-0.69		
Childhood Withdrawal	-0.22	0.05	-1.52		
Step 2				0.00	0.09
Childhood Aggression	-0.10	0.01	-0.66		
Childhood Withdrawal	-0.21	0.04	-1.36		
Maternal Education	0.05	0.00	0.30		
Step 3				0.05	2.42
Childhood Aggression	-0.06	0.00	-0.44		
Childhood Withdrawal	-0.23	0.05	-1.55		
Maternal Education	0.08	0.01	0.51		
Child Gender[a]	-0.23	0.05	-1.55		
Step 4				0.02	0.80
Childhood Aggression	0.03	0.00	0.17		
Childhood Withdrawal	-0.21	0.04	-1.34		
Maternal Education	0.10	0.01	0.67		
Child Gender	-0.27	0.06	-1.74[t]		
Childhood Aggression x Withdrawal	-0.16	0.02	-0.89		
	R = .35		R^2_{Adj} = .02		F = 1.19

[t]p < 0.10, *p < 0.05, **p < 0.01, ***p < .001
Note. [a]Child Gender: boys = 1, girls = 2.

Table L - 2

Maternal Childhood Levels of Aggression and/or Social Withdrawal and Children's Behavioural Inhibition (N=49)

Variables	Beta	Sr^2	T	R^2_{ch}	F_{ch}
Step 1				0.04	0.88
Childhood Aggression	-0.04	0.00	-0.26		
Childhood Withdrawal	0.19	0.03	1.27		
Step 2				0.00	0.02
Childhood Aggression	-0.04	0.00	-0.25		
Childhood Withdrawal	0.19	0.03	1.25		
Maternal Education	0.02	0.00	0.15		
Step 3				0.00	0.03
Childhood Aggression	-0.03	0.00	-0.22		
Childhood Withdrawal	0.19	0.03	1.21		
Maternal Education	0.03	0.00	0.17		
Child Gender[a]	-0.03	0.00	-0.16		
Step 4				0.04	1.67
Childhood Aggression	0.11	0.01	0.58		
Childhood Withdrawal	0.23	0.05	1.45		
Maternal Education	0.07	0.00	0.43		
Child Gender	-0.08	0.01	-0.51		
Childhood Aggression x Withdrawal	-0.24	0.04	-1.29		
	R = .27		R^2_{Adj} = -.03		F = 0.64

$^{t}p < 0.10$, $^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < .001$

Note. [a]Child Gender: boys = 1, girls = 2.

Table L - 3

Maternal Negative Cues to Emotion and Children's Activity Level (N=49)

Variables	Beta	Sr^2	T	R^2_{ch}	F_{ch}
Step 1				0.01	0.21
Childhood Aggression	0.05	0.00	0.32		
Childhood Withdrawal	-0.08	0.01	-0.52		
Step 2				0.01	0.64
Childhood Aggression	0.06	0.00	0.38		
Childhood Withdrawal	-0.04	0.00	-0.27		
Maternal Education	0.12	0.01	0.80		
Step 3				0.04	1.86
Childhood Aggression	0.04	0.00	0.30		
Childhood Withdrawal	-0.01	0.00	-0.06		
Maternal Education	0.08	0.01	0.53		
Maternal Negative Cues to Emotion	0.21	0.04	1.36		
Step 4				0.04	2.02
Childhood Aggression	-0.10	0.01	-0.55		
Childhood Withdrawal	-0.05	0.00	-0.34		
Maternal Education	0.04	0.00	0.27		
Maternal Negative Cues to Emotion	0.24	0.05	1.55		
Childhood Aggression x Withdrawal	0.25	0.04	1.42		
	R = .32		R^2_{Adj} = .00		F = 1.00

$^{t}p < 0.10$, $^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < .001$

Table L - 4

Child Negative Cues to Emotion and Empathy (N=48)

Variables	Beta	Sr^2	T	R^2_{ch}	F_{ch}
Step 1				0.11	2.90^t
Childhood Aggression	0.12	0.01	0.87		
Childhood Withdrawal	-0.30	0.09	-2.14*		
Step 2				0.00	0.18
Childhood Aggression	0.13	0.02	0.90		
Childhood Withdrawal	-0.28	0.07	-1.90^t		
Maternal Education	0.06	0.00	0.42		
Step 3				0.03	1.37
Childhood Aggression	0.11	0.01	0.79		
Childhood Withdrawal	-0.32	0.09	-2.10*		
Maternal Education	0.07	0.01	0.49		
Child Negative Cues to Emotion	-0.17	0.03	-1.17		
Step 4				0.00	0.02
Childhood Aggression	0.13	0.01	0.73		
Childhood Withdrawal	-0.31	0.08	-2.00^t		
Maternal Education	0.08	0.01	0.50		
Child Negative Cues to Emotion	-0.17	0.03	-1.16		
Childhood Aggression x Withdrawal	-0.02	0.00	-0.13		
	R = .38		R^2_{Adj} = .04		F = 1.43

$^t p < 0.10$, $*p < 0.05$, $**p < 0.01$, $***p < .001$

Table L - 5

Child Self-soothing Behaviours and Empathy (N=48)

Variables	Beta	Sr^2	T	R^2_{ch}	F_{ch}
Step 1				0.11	2.90^t
Childhood Aggression	0.12	0.01	0.87		
Childhood Withdrawal	-0.30	0.09	-2.14*		
Step 2				0.00	0.18
Childhood Aggression	0.13	0.02	0.90		
Childhood Withdrawal	-0.28	0.07	-1.90^t		
Maternal Education	0.06	0.00	0.42		
Step 3				0.00	0.02
Childhood Aggression	0.13	0.02	0.87		
Childhood Withdrawal	-0.29	0.07	-1.85^t		
Maternal Education	0.07	0.00	0.43		
Child Self-soothing Behaviours	-0.02	0.00	-0.15		
Step 4				0.00	0.00
Childhood Aggression	0.13	0.01	0.70		
Childhood Withdrawal	-0.29	0.06	-1.70^t		
Maternal Education	0.07	0.00	0.42		
Child Self-soothing Behaviours	-0.02	0.00	-0.14		
Childhood Aggression x Withdrawal	-0.00	0.00	-0.01		
	R = .34		R^2_{Adj} = .01		F = 1.12

$^t p < 0.10$, $*p < 0.05$, $**p < 0.01$, ***p < .001

Table L - 6

Child Activity Level and Empathy (N=48)

Variables	Beta	Sr^2	T	R^2_{ch}	F_{ch}
Step 1				0.11	2.90^t
Childhood Aggression	0.12	0.01	0.87		
Childhood Withdrawal	-0.30	0.09	-2.14*		
Step 2				0.00	0.18
Childhood Aggression	0.13	0.02	0.90		
Childhood Withdrawal	-0.28	0.07	-1.90^t		
Maternal Education	0.06	0.00	0.42		
Step 3				0.03	1.47
Childhood Aggression	0.12	0.01	0.85		
Childhood Withdrawal	-0.27	0.07	-1.83^t		
Maternal Education	0.05	0.01	0.30		
Child Activity Level	0.17	0.03	1.21		
Step 4				0.00	0.08
Childhood Aggression	0.15	0.02	0.86		
Childhood Withdrawal	-0.26	0.06	-1.70^t		
Maternal Education	0.05	0.00	0.34		
Child Activity Level	0.18	0.03	1.23		
Childhood Aggression x Withdrawal	-0.05	0.00	-0.28		
	R = .39		R^2_{Adj} = .05		F = 1.46

$^t p < 0.10$, $^* p < 0.05$, $^{**} p < 0.01$, $^{***} p < .001$

Table L - 7

Child Inhibitory Control Failure and Empathy (N=48)

Variables	Beta	Sr^2	T	R^2_{ch}	F_{ch}
Step 1				0.11	2.90[t]
Childhood Aggression	0.12	0.01	0.87		
Childhood Withdrawal	-0.30	0.09	-2.14*		
Step 2				0.00	0.18
Childhood Aggression	0.13	0.02	0.90		
Childhood Withdrawal	-0.28	0.07	-1.90[t]		
Maternal Education	0.06	0.00	0.42		
Step 3				0.05	2.31
Childhood Aggression	0.21	0.04	1.41		
Childhood Withdrawal	-0.31	0.08	-2.08*		
Maternal Education	0.01	0.00	0.06		
Child Inhibitory Control	0.24	0.05	1.52		
Step 4				0.00	0.00
Childhood Aggression	0.21	0.03	1.18		
Childhood Withdrawal	-0.31	0.08	-2.02*		
Maternal Education	0.01	0.00	0.05		
Child Inhibitory Control Failure	0.24	0.05	1.50		
Childhood Aggression x Withdrawal	0.01	0.00	0.05		
	R = .40		R^2_{Adj} = .06		F = 1.63

[t]p < 0.10, *p < 0.05, **p < 0.01, ***p < .001

Table L - 8

Child Self-soothing Behaviours and Assertiveness Skills (N=48)

Variables	Beta	Sr^2	T	R^2_{ch}	F_{ch}
Step 1				0.05	1.24
Childhood Aggression	0.15	0.02	1.03		
Childhood Withdrawal	-0.16	0.02	-1.07		
Step 2				0.04	1.97
Childhood Aggression	0.17	0.03	1.16		
Childhood Withdrawal	-0.09	0.01	-0.63		
Maternal Education	0.21	0.04	1.40		
Step 3				0.00	0.00
Childhood Aggression	0.17	0.03	1.15		
Childhood Withdrawal	-0.09	0.01	-0.58		
Maternal Education	0.21	0.04	1.37		
Child Self-soothing Behaviours	0.01	0.00	0.06		
Step 4				0.00	0.04
Childhood Aggression	0.19	0.02	1.03		
Childhood Withdrawal	-0.08	0.01	-0.49		
Maternal Education	0.21	0.04	1.37		
Child Self-soothing Behaviours	0.02	0.00	0.11		
Childhood Aggression x Withdrawal	-0.03	0.00	-0.19		
	R = .31		R^2_{Adj} = -.01		F = 0.87

$^{t}p < 0.10$, $^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < .001$

Table L - 9

Child Self-soothing Behaviours and Self-control (N=48)

Variables	Beta	Sr^2	T	R^2_{ch}	F_{ch}
Step 1				0.05	1.12
Childhood Aggression	0.11	0.01	0.77		
Childhood Withdrawal	-0.18	0.03	-1.19		
Step 2				0.02	0.98
Childhood Aggression	0.13	0.02	0.85		
Childhood Withdrawal	-0.13	0.02	-0.85		
Maternal Education	0.15	0.02	0.99		
Step 3				0.00	0.14
Childhood Aggression	0.13	0.02	0.87		
Childhood Withdrawal	-0.11	0.01	-0.70		
Maternal Education	0.14	0.02	0.93		
Child Positive Cues to Emotion	0.06	0.00	0.37		
Step 4				0.00	0.00
Childhood Aggression	0.13	0.01	0.71		
Childhood Withdrawal	-0.11	0.01	-0.66		
Maternal Education	0.14	0.02	0.91		
Child Positive Cues to Emotion	0.06	0.00	0.36		
Childhood Aggression x Withdrawal	-0.00	0.00	-0.01		
	R = .27		R^2_{Adj} = -.04		F = 0.64

$^{t}p < 0.10$, $^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < .001$